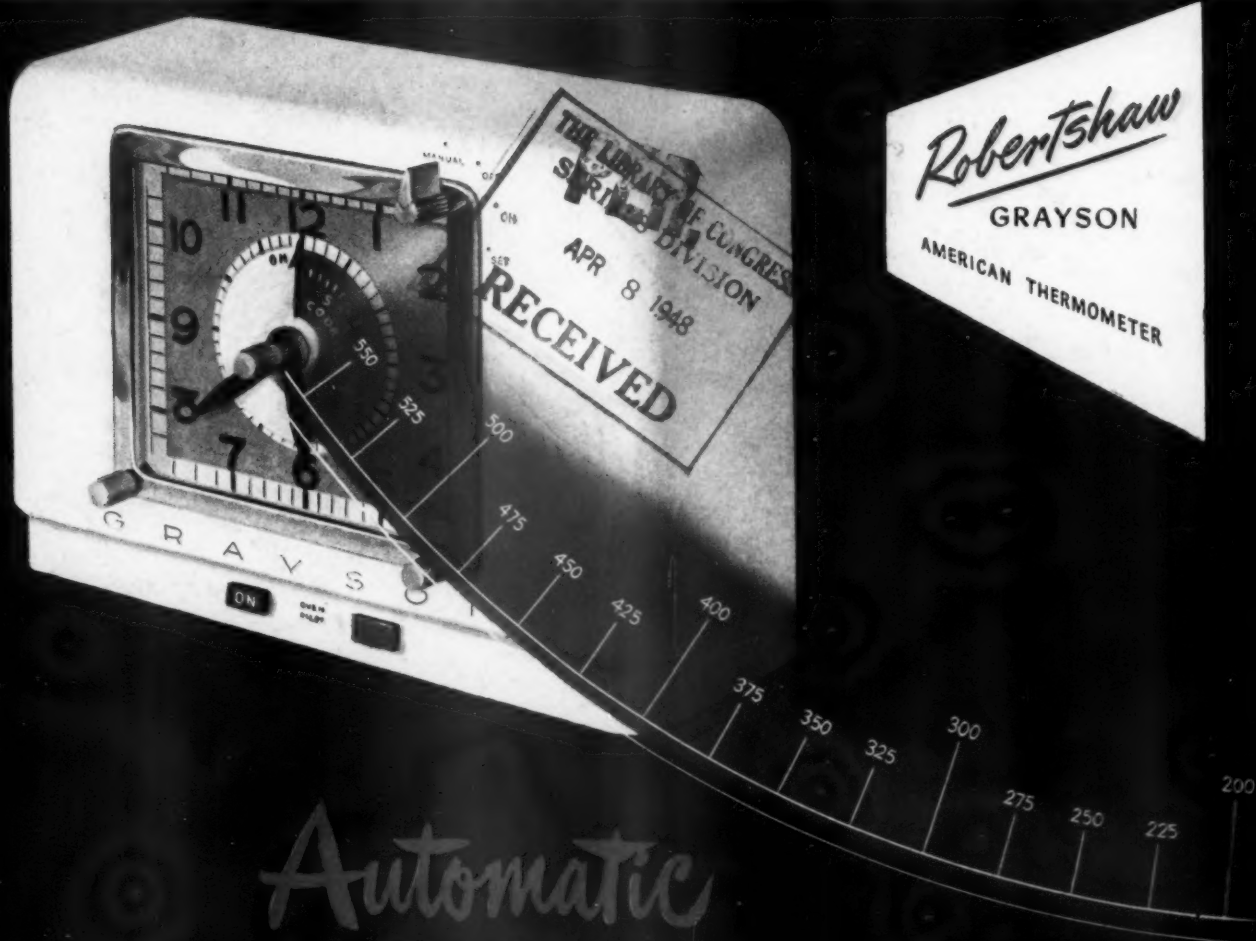


AMERICAN GAS JOURNAL

80th YEAR

MARCH 1948

VOL. 168, NO. 3



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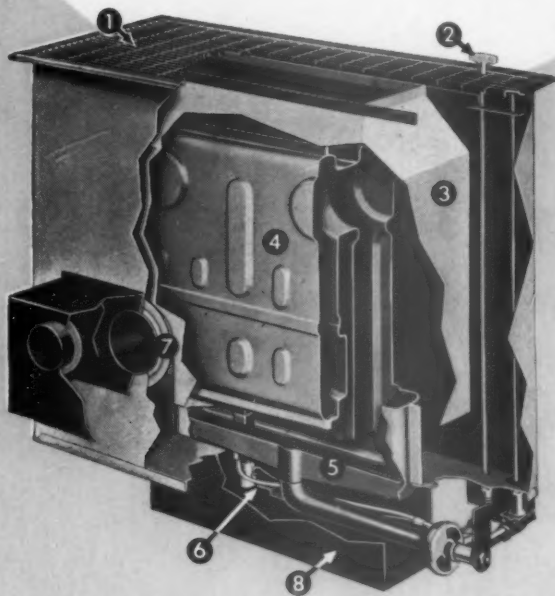
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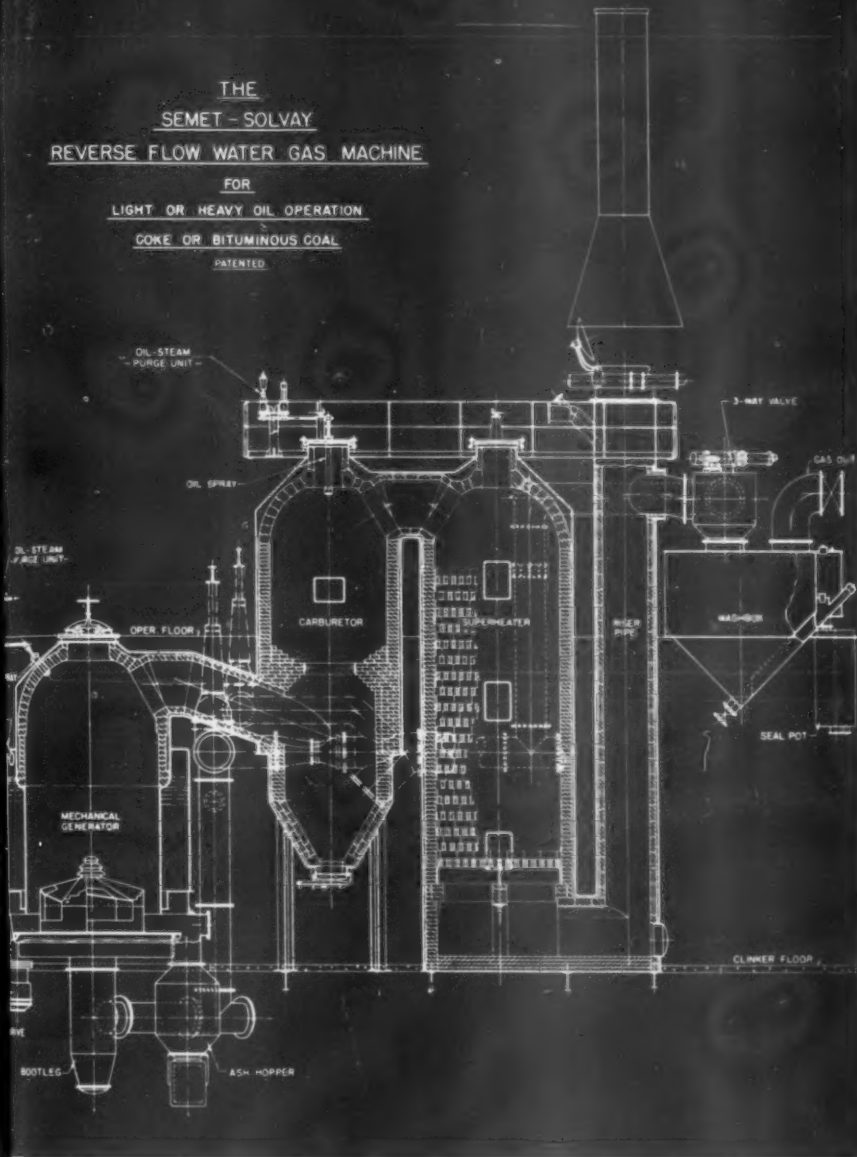


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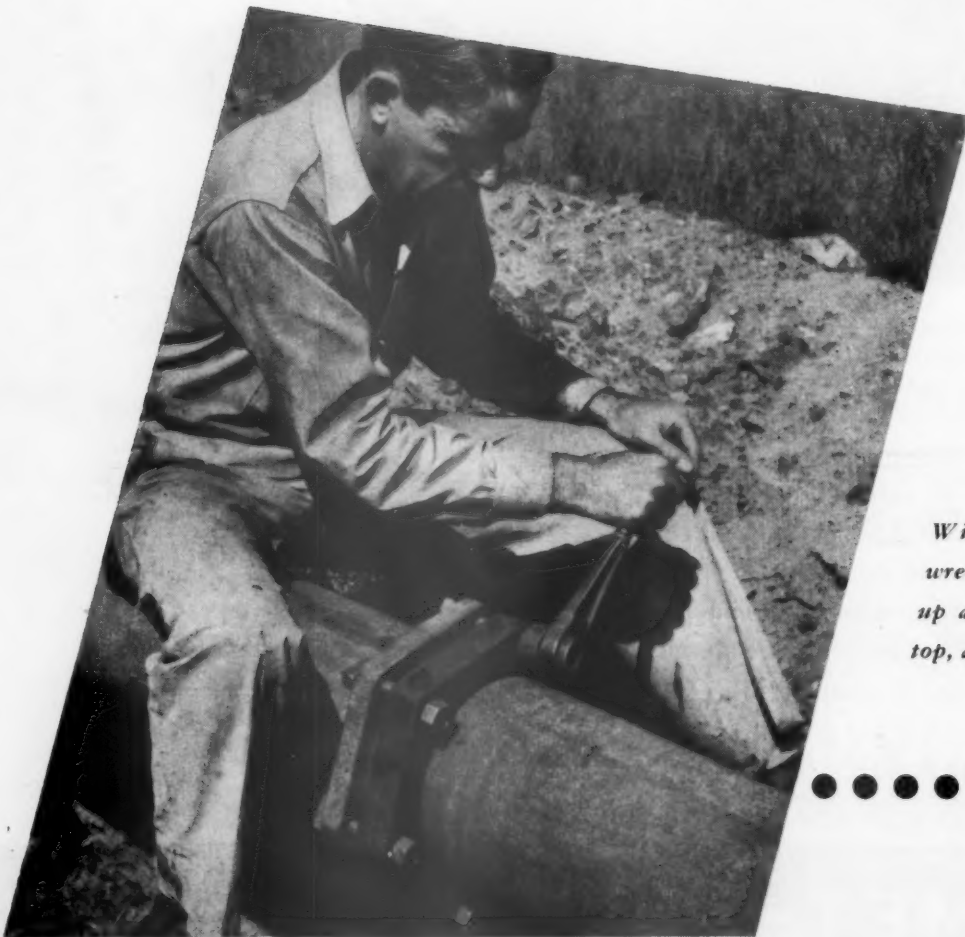
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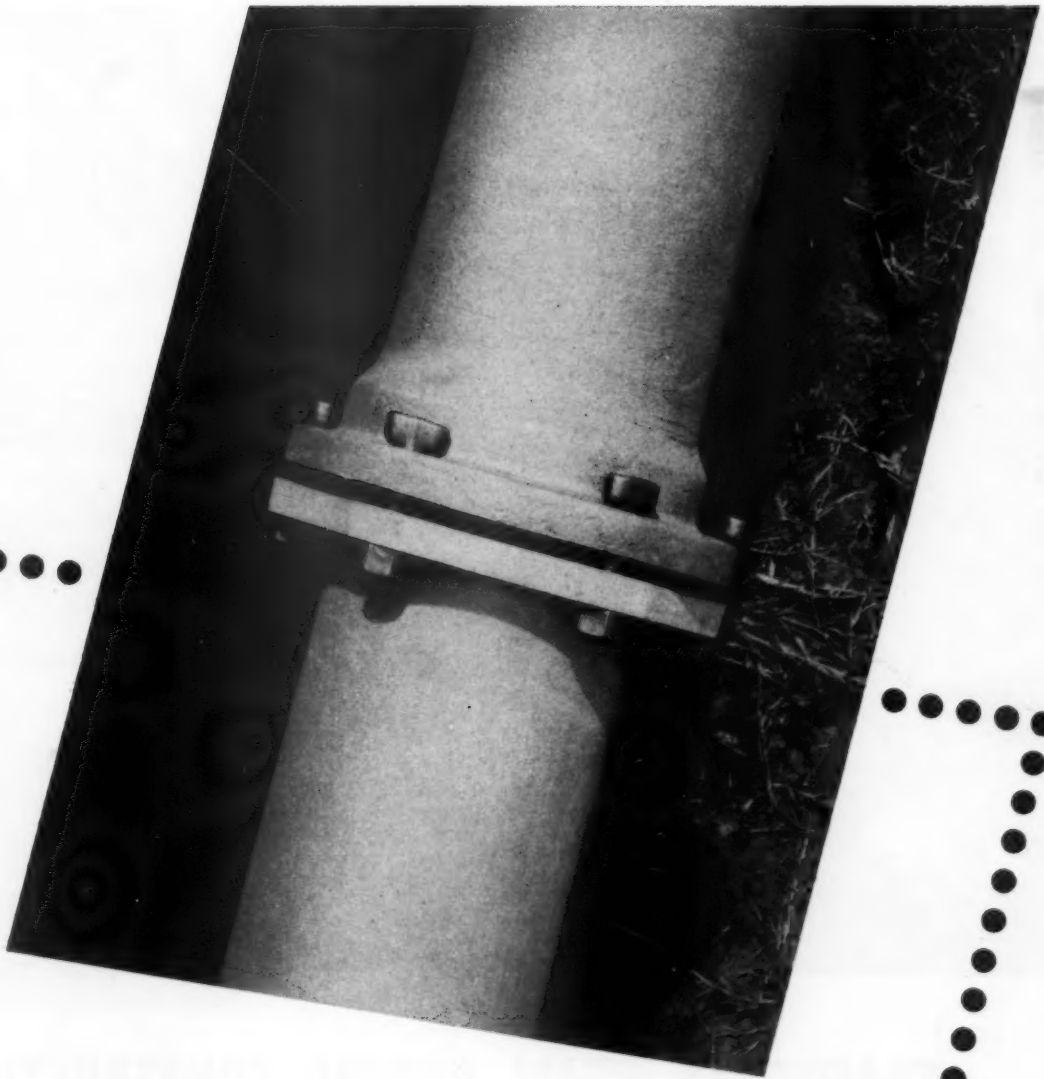
THE TREND

toward standardization on Standardized Mechanical Joint Cast Iron Pipe by important gas utilities is unmistakable. For two outstanding reasons. The pipe is known to have unequalled long life—the joint is known to be bottle-tight at all working pressures. Additional advantages are: it can be quickly and easily installed by untrained men; more lengths can be installed per day with minimum equipment and a small crew; wet weather or a wet trench present little or no difficulties, involve no delay; accessories and fittings are interchangeable with those supplied by all makers of mechanical joint cast iron pipe. Our 88-page **"Manual of Mechanical Joint Cast Iron Pipe and Fittings for the Gas Industry"** should be in your hands. If not, write Cast Iron Pipe Research Association, Thomas F. Wolfe, Engineer, Peoples Gas Bldg., Chicago 3.



With an ordinary ratchet wrench, bolts are tightened up alternately (bottom, then top, and so on).



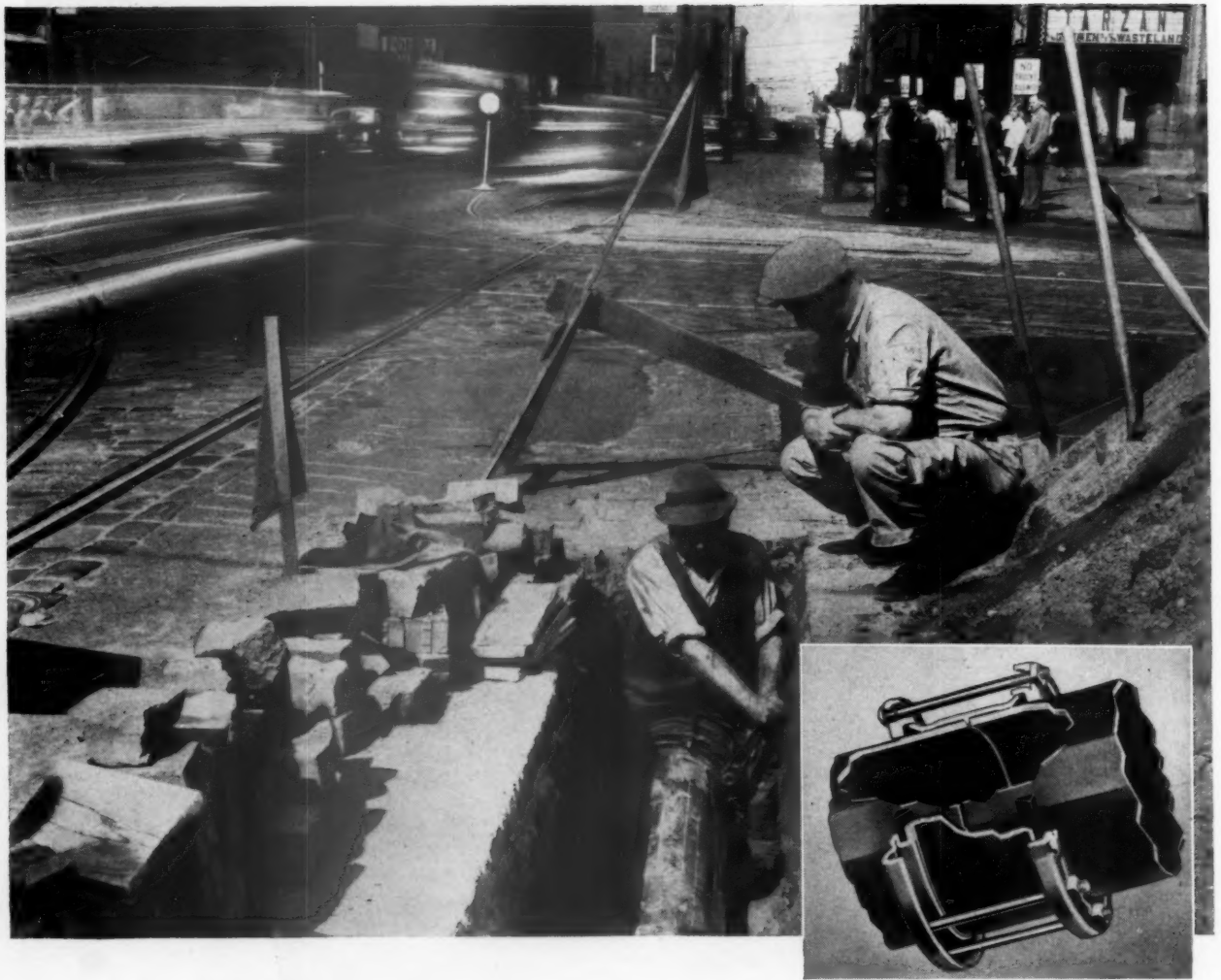


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PIPE



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This Time: In a Semet-Solvay Reverse Flow Set

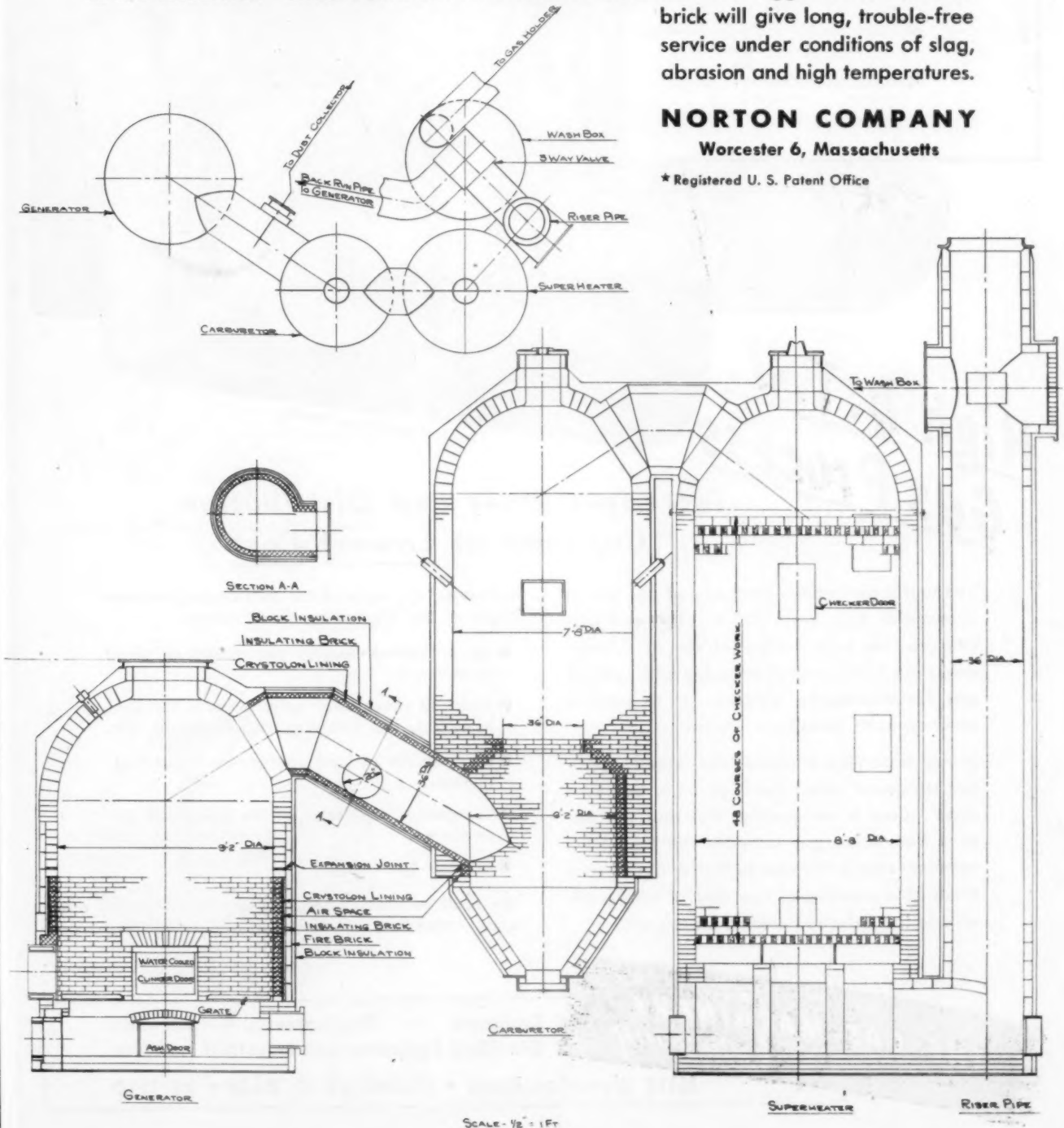
Location: Pawtucket, R. I. plant, Blackstone Valley Gas & Electric Company
 Masonry Contractor: W. J. Gaskill Co., N.Y.C.

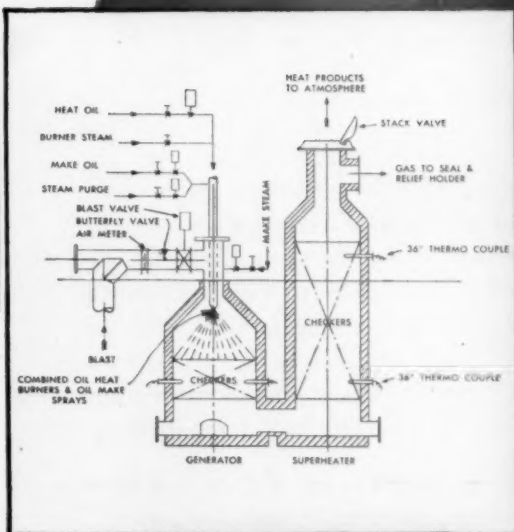
The drawing below shows the installation of CRYSTOLON Brick in a reverse flow, open carburetor type of water gas set. Twenty-four courses of CRYSTOLON Brick were laid in the generator, extending up five feet from the grate line. A full lining of CRYSTOLON Brick were set in the generator offtake, and 28 courses of these brick were laid in the base of the carburetor. CRYSTOLON Brick are selected because these rugged silicon carbide brick will give long, trouble-free service under conditions of slag, abrasion and high temperatures.

brick will give long, trouble-free service under conditions of slag, abrasion and high temperatures.

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- Dependable 24-hour operation without shut-downs.
- "Fingertip" regulation of the quality of gas produced.
- Cleaner operation.

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VOLUME 168
Number 3

AMERICAN GAS JOURNAL

WHOLE
NUMBER 3888

ESTABLISHED 1859

MARCH 1948

PUBLISHED MONTHLY BY
AMERICAN GAS JOURNAL, Inc.
53 Park Place, New York 7

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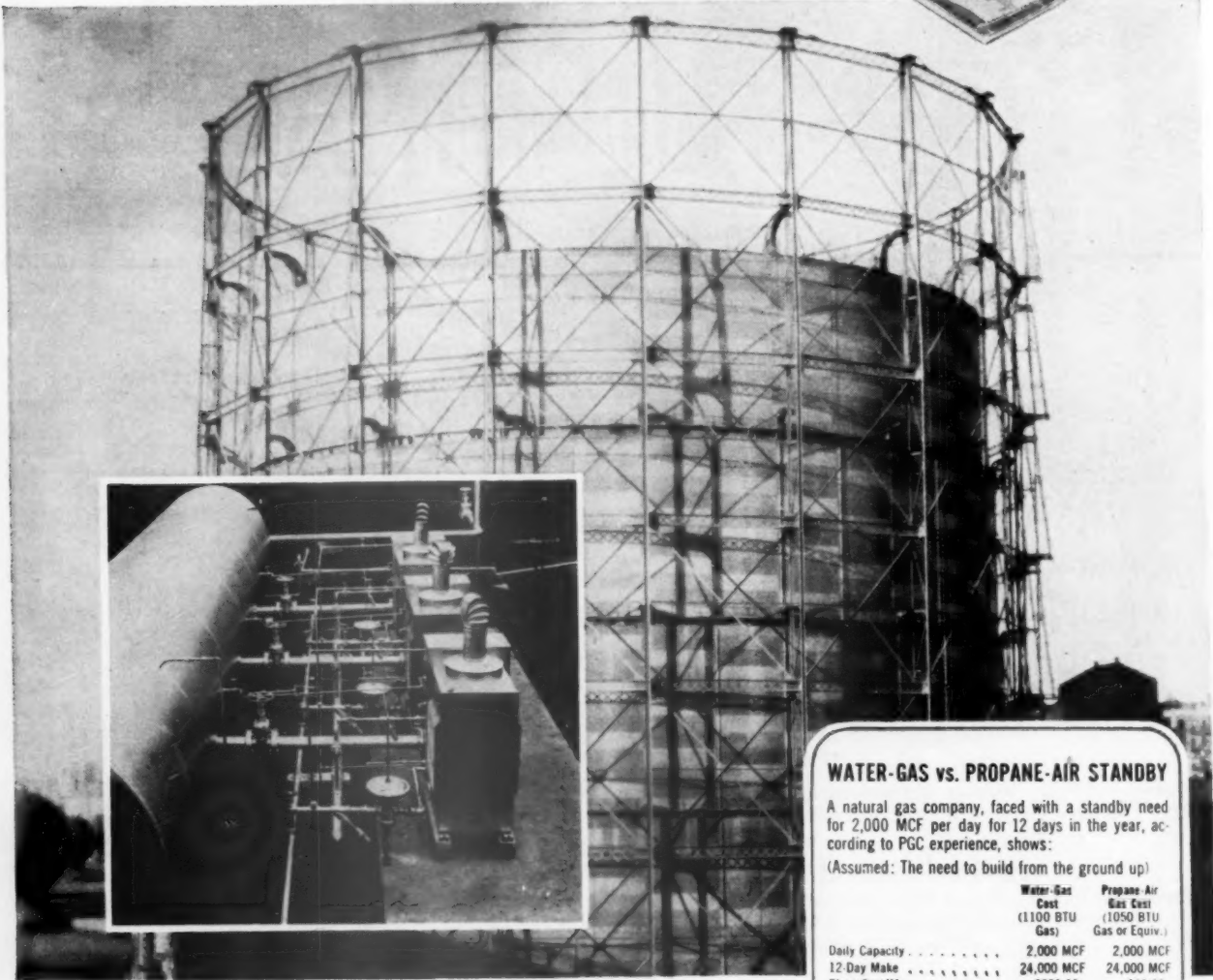
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Subscription \$2.00 per year U.S.A.; \$3.00
Canada; \$4.00 Foreign. Single copies 25 cts.

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Water-Gas vs. Propane-Air Standby

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PGC Gasair plants, now serving gas utility companies in 36 states from coast to coast, are definitely the economical, efficient answer to your problems, whether standby, peak shaving, enrichment or reforming. Phone or wire and we will gladly send an engineer to discuss your needs. PGC PROPANE IS NOW AVAILABLE.

WATER-GAS vs. PROPANE-AIR STANDBY

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(Assumed: The need to build from the ground up)

	Water-Gas Cost (1100 BTU Gas)	Propane-Air Gas Cost (1050 BTU Gas or Equiv.)
Daily Capacity	2,000 MCF	2,000 MCF
12-Day Make	24,000 MCF	24,000 MCF
Plant Cost/M	\$250.00	\$60.00
Dollars	\$500,000.00	\$120,000.00
Fixed Charges		
@ 12%	\$60,000.00	\$14,400.00
/MCF	\$2.50	\$.60
Gas Cost		
Fuel 20¢/M		
@ \$12.50/Ton	.12	—
Propane		
11 Gal/M @ 12¢	—	1.32
Oil		
11 Gal/M @ 8 1/2¢	.935	—
Labor	.10	.02
Maintenance	.04	.02
	\$3.695	\$1.96

Saving propane-air vs. water-gas \$1.735/MCF made gas.

Thus: The savings achieved through PGC propane-air would be 2,000M x 12 x \$1.735 or \$41,600. And this represents a 34.4% return on the PGC propane-air plant investment for the 12 day period.

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GASAIR DIVISION

L.P. Gas Piping and Appliance Regulations Proposed Ordinance in Preparation by Pacific Coast and National Gas Organizations Includes Venting and Ventilation

By
Fred A. Herr

AN ORDINANCE incorporating recommended piping and appliance regulations for liquefied petroleum gas installations was completed in tentative form in California in January through the co-operative efforts of three organizations representing various divisions of the gas industry.

Collaborating in the assembly of data and the preparation of recommended regulations were the Pacific Coast Gas Association, via the Heating Division of its Manufacturers' Section; the Institute of Gas Heating Industries of Southern California, through its Ordinance and Code Committee, headed by Peter Barowsky, of Los Angeles; and the Liquid Petroleum Gas Association, through its incumbent president, Ty Ransome of Sacramento, Calif.

By mid-February, action on the project had progressed to a point where a proposed ordinance had been drawn up by the PCGA's Heating Division, headed by Lou Hull of the Hammel Radiator Engineering Co. of Los Angeles, from collated data assembled by PCGA and Institute representatives who conferred with the Texas Railroad Commission, Texas butane dealer groups, and other sources, nationally as well as on the West Coast.

Public Safety Stressed

The objective of the three-co-ordinating gas groups, according to Richard O. Montrief, vice-president and general manager of the Ward Heater Co., Los Angeles, and incumbent president of the Institute of

Gas Heating Industries, is to bring about the adoption by municipal, county and/or state authorities in California and other states of adequate regulations pertaining to liquid petroleum gas appliances and their installation in order that the health and safety of the users of such equipment can be safeguarded to the utmost degree. Mr. Montrief, as president of the Institute as well as a member of the PCGA Heating Committee, played one of the leading roles in furthering the LPG ordinance movement.

Confer With Texas Officials

Many months of work by a spe-

"The liquefied petroleum gas industry continues to present a substantial, fast-growing outlet for gas appliances and equipment. During 1947, according to figures collected by the Gas Appliance Manufacturers Association, about 26 per cent of all gas ranges, 21 per cent of all automatic gas water heaters, and 14 per cent of all gas floor furnaces were for use with liquefied petroleum gases. From all indications, the liquefied petroleum gas industry added more than the 500,000 new residential users predicted for the year 1947."—John A. Robertshaw.

cial committee of the PCGA Manufacturers' Section and the Ordinance Committee of the Institute, which included the sending of delegations to Austin, Tex., for conferences with members of the Texas Railroad Commission, and to St. Louis, Mo., to consult officials of the Gas Appliance Manufacturers' Association at its 1947 convention there, preceded the drafting of LPG data into a 10-page document entitled "Recommended Piping and Appliance Regulations for Liquefied Petroleum Gas Installations."

These recommendations, dealing with L.P.G. piping, valves, method of installing appliances, sizing and supports, vents, etc., will be described later in this report.

In January of this year the recommendations were ready for submission to President Ransome of the Liquid Petroleum Gas Association for consideration by the Technical Section of that organization. The LPGA is reported to be attempting to incorporate the recommendations of the PCGA Heating Committee into its own national association proposals for LPG appliance regulation.

Special PCGA Committee Named

The movement toward bringing about proper LPG installation control in California and other western states originated in the summer of 1947 when a special committee was appointed by Chairman Lou Hull of the PCGA Heating Division. Members of this committee are:

Mr. Montrief (chairman):

O. N. Simmons, Ward Heater Co., Los Angeles.

F. O. Suffron, Hammel Radiator Engineering Co., Los Angeles.

R. J. Peterson, Utility Appliance Corp., Los Angeles.

Art Theobald and J. C. Mueller, Payne Furnace Co., Beverly Hills; R. L. Stanley, Naco Mfg. Co., Los Angeles.

The committee was formed for the purpose of reviewing the regulations contained in Division VII of proposed Docket #141 of the Gas Utilities Division, Texas Railroad Commission, and to propose such changes and revisions as were deemed advisable for West Coast use.

Review Texas Proposal

In order thoroughly to familiarize themselves with what had been attempted along LPG regulatory lines in other states, a three-man delegation was sent to Austin, Tex., to confer with the Texas Railroad Commission. This traveling committee was composed of Mr. Montrief, El Roy L. Payne, president of the Payne Furnace Co., and Art Theobald of the same firm.

The special PCGA committee subsequently met in Los Angeles on September 19 and again on October 17, 1947, with Mr. Montrief as chairman, to review Division VII of the Texas proposal and the revisions recommended by the committee, in the presence of representatives of the LPG industry who are familiar with the utilization and distribution phases of liquefied petroleum gas.

LPG Men Meet in Los Angeles

At the October meeting in Los Angeles the urgency of immediate action in presenting a model LPG ordinance to interested states was emphasized by Chairman Montrief because, as he stated, certain states were then contemplating new LPG legislation. Florida, according to Mr. Montrief, had at that time already adopted a new law which prohibits the use of floor furnaces when the appliance to be installed extends below the ground level. (NOTE: The proposed PCGA ordinance would permit a floor furnace to be installed on an upper floor if the furnace assembly projects below into a utility room, garage or other non-habitable space).

At the October conference, the special committee agreed to proceed in the following manner:



L. M. Hull

- 1... From the data already assembled, to develop a model ordinance in the immediate future.
- 2... To see that copies are made available to a special committee of the Liquid Petroleum Gas Association.
- 3... To forward copies to B. S. Sauter, chairman, Ordinance Committee, L.P.G.A. of California, for review and endorsement by that group.
- 4... Forward copies to the national L.P.G.A. group for review and endorsement.
- 5... See that copies are forwarded to cognizant groups in states already or nearly ready to act upon new LPG legislation.

Proposed Model Ordinance Drawn

By the first of this year, the special committee's work had culminated in the compilation of recommended LPG regulations. Their distribution, as decided upon by the PCGA committee, has been accomplished, Mr. Montrief advised the *American Gas Journal*, and copies of the proposal are now in the hands of the ordinance committee of the L.P.G.A., the American Gas Association, the Manufacturers' Section of PCGA, and interested parties in other states, including the Texas Railroad Commission, in which legislation pertaining to the use of LPG is being contemplated or under preparation.

In Southern California, the Ordinance Committee of the Gas Heating Institute, headed by A. B. Banowsky of the Payne Furnace Co., in February was concentrating its efforts on attempts to have appropriate ordinances adopted by both the city and county of Los Angeles, in which the basic features of the recommendations of the PCGA and Institute committees would be incorporated. The Gas Heating Institute

is devoting its efforts at present largely toward influencing the adoption of such an ordinance by Los Angeles city and county, while the PCGA Heating Division is handling the job of promoting ordinance adoption in California and the other 10 states within its territory, and in working closely with out-of-state groups.

Gas Institute Head Comments

President Montrief of the Gas Heating Institute commented as follows to *American Gas Journal*:

"We have found that there is urgent need for legislation governing the proper installation of LPG appliances and equipment, with special attention being paid to proper ventilation and aeration of liquefied petroleum appliances and to so-called trapped areas. The PCGA Heating Division committee recommends that all manufacturers take cognizance of the fact that at present, in many instances, the manufacturers' instructions to dealers regarding the installation of LPG equipment is inadequate. For that reason, an ordinance, based on the conclusions and recommendations of a committee of men thoroughly familiar with the many phases of the LPG problem, would seem to warrant the support of all progressive thinking members of the industry."

Resume of Proposed Ordinance

The recommendations on pipe and appliance regulations prepared by the PCGA committee, which appears destined eventually to serve as the basis for forthcoming ordinances on the West Coast, and possibly nationally also, covers the major phases



A. B. Banowsky

of LPG appliance installation. These are piping, including installation and sizing; venting of appliances and ventilation of areas in which they are installed; accessibility of appliances; permissible types of appliances; and requirements for appliance construction, sizing and placement.

In addition to incorporating detailed recommendations concerning the above primary points, the proposed ordinance contains a section devoted to general installation requirements. This section sets forth that in the installation of a gas floor furnace there are five major points to consider, these being *sizing, placement, venting, gas connections, and general installation* requirements.

Floor Furnace Regulations

The measure provides that gas floor furnaces may be installed in an upper floor if furnace assembly projects below into a utility room, closet, garage, or similar non-habitable space. This provision was included after the committee had studied the provisions of a recently adopted Florida LPG law in which it is prohibited to install a furnace that projects below ground level, and decided that provision could well be modified. In such installations, according to the California proposal, the furnace shall be enclosed completely, with means for air intake to meet the requirements of Paragraph 30 of Commercial Standard CS99-42, with provision for service, with furnace clearances of 6 inches on all sides and bottom.

Recommendations for floor levels surrounding furnaces, bracing and supports are also included among the general installation requirements.

The section on appliance-construction requirements sets forth that

"... all gravity-type L.P. gas floor furnaces shall be manufactured so as to comply with the requirements for performance, safety operation, and substantial and durable construction, set forth in the latest American Standard Approval Requirements for Central Heating Gas Appliances (Z21.13), published by the American Gas Association. Such compliance shall be determined from laboratory tests on one or more sample furnaces by a nationally recognized testing agency..."

Section on Furnace Sizing

In the section on "Sizing," the ordinance recommends that for residences at least one gas floor furnace for each 45,000 b.t.u. per hour total heat loss be used. The heat loss, the ordinance explains, may be based on a formula established by the ASHVE in which calculations for residences



E. L. Payne

are based on 70 Deg. F. inside all rooms to be heated, when outside temperature is either at design temperature or 15 Deg. F. above the lowest recorded temperature of the locality.

For other types of buildings, the measure recommends that the inside design temperature be used, as recommended in the ASHVE Guide.

On size, the ordinance recommends that, after determining the correct heat loss, a pickup factor of not less than 10% shall be added.

"The minimum-size furnace or furnaces can then be selected. Under the marking rules of the A.G.A., the input and output ratings of a gravity-type gas floor furnace are required on the name plate.

"When selecting the proper size furnace, the minimum output rating of a furnace, or the combined output ratings of the furnaces shall not be less than the computed maximum hourly heat loss, including the pickup factor."

Placement of Appliances

Concerning placement of units, the ordinance states:

"The following are requirements that will serve in properly placing the furnace or furnaces to serve one story: To meet varying conditions of climate and usage, it is recommended that the furnace be so located that for residences the maximum distance, center to center, between the furnace and any room to be heated by it, measured through intervening openings, should be as short as possible, preferably not to exceed 15 feet. The furnace or furnaces shall be so placed that any single path of air circulating to and from the furnace does not pass through more than one doorway and one arch."

The ordinance proposes that all piping for conveying gas or liquid on the low pressure side of the regulator shall be suitable for a safe working pressure of not less than 125 lbs. per square inch; and that piping for conveying gas or liquid at bank pressure shall be designed for a safe working pressure of not less than three times the working

pressure of the container to which it is connected.

The ordinance would permit the use of wrought iron, steel (either black or galvanized), brass or copper pipe, or seamless copper or other approved non-ferrous tubing. The use of aluminum tubing for exterior location, or where it passes through masonry or plaster walls of insulation, is not recommended in the measure.

Section on LPG Valves

The measure sets forth that valves used with liquefied petroleum gas shall be of an approved type suitable for use with LPG and that valve seat material, packing, gaskets, etc., shall be of a type resistant to the action of liquefied petroleum gas in the liquefied phase.

Under the ordinance, gas appliances burning not more than 90 cubic feet per hour could be connected with seamless metal tubing connectors that meet specifications set forth pertaining to end fittings, method of attaching tubing connectors, over-all length of such tubing connections, stop cocks, etc.

The ordinance provides that piping installed in public buildings, such as schools, churches, business houses, tourist courts, etc., shall be tested for leaks by a liquefied petroleum gas licensee once each year and a report of such tests be forwarded to the gas division of the Railroad Commission, State Utilities Commission or similar body.

Piping and Supports

Recommendations for supports for horizontal runs of piping are given as follows:

Size of Pipe	Spacing of Supports
½ inch and smaller	6 feet.
¾ inch to 1 inch	8 feet.
1¼ inch and larger	10 feet.

On appliances, the ordinance states:

"Appliances to be connected to a liquefied petroleum gas system shall be of a type approved by the Railroad Commission. Such appliances shall have been tested and approved for use with liquefied petroleum as a fuel, by the laboratory of the American Gas Association or other recognized testing laboratory, and shall bear the laboratory seal of approval for use with liquefied petroleum gas fuels."

The detailed recommendations in the ordinance include the subjects of adequate support for appliances to avoid stress in the connection, and the prohibition of installations of appliances in rooms incapable of being properly vented.

Venting and Ventilation

Since venting and ventilation are considered of primary importance in the control of safety, the section on venting is presented in considerably more detail than other sections. The ordinance specifies that every gas appliance for use on liquefied petroleum gas equipped with a vent collar shall be properly vented to the outer air. The more detailed recommendations deal with type and construction of the draft hood; type of damper, size of the vertical vent, flue or chimney, which must be not less than the area of the vent collar of the appliance, and in no case less than 12 square inches in area.

The ordinance provides that fixed ventilation shall be provided to any confined space which encloses an appliance, by means of a duct or grill arranged to supply combustion air, unless adequate natural ventilation is available. Other recommendations deal with the location of ventilating openings, size of excavation for floor furnace pits, accessibility of appliance for repair and servicing purposes.

Detailed Venting Recommendations

The section headed "Venting" presents detailed recommendations for the different phases of that subject, including draft hoods, dampers, venting material, connections, crossover, etc. The section reads in part:

(A) Every gas appliance for use on liquefied petroleum gas equipped with a vent collar shall be properly vented to the outer air. The following requirements cover proper venting:

(b) A draft hood which meets the approval requirements of the AGA shall be made a part of the vent connection to the vertical chimney or vent, unless the construction of the appliance serves the same purpose.

(c) A damper or similar device shall never be installed in the vent pipe from the appliance.

(d) All gas appliances shall be vented into a vertical vent, flue or chimney of a size not less than the area of the vent collar of the appliance and in no case less than 12 square inches in area.

(e) The vertical vent, flue or chimney shall extend at least two feet above the highest elevation of the building, within ten feet of the termination of the vertical vent, flue or chimney.

(f) In case venting material (not a chimney) is used for the vertical vent, the material used shall conform to the local building code. In addition, it shall be installed according to the local building code. In the absence

of a local building code, the vent shall consist of approved fireproof material. All masonry chimneys constructed for the purpose of venting a gas appliance shall be lined with terra-cotta or comparable flue lining. Whenever a gas appliance is vented into an existing unlined masonry chimney, the chimney shall be clean. The horizontal vent connection in all cases shall enter the chimney at least one foot above the bottom of the chimney. Means shall be provided for cleaning out the base of the chimney.

The measure provides that the horizontal vent connection shall be as short as possible and shall not be longer than 75% of the height of the vertical vent, flue or chimney, and have an incline of not less than one-quarter inch per foot of length.

On crossover or offset, the ordinance sets forth that no crossover or offset shall be permitted at an angle of less than 30 degrees to the horizontal.

Provision is also made for appliances connected to a chimney or vertical vent, flue or chimney into which other appliances are connected, or where two or more appliances are connected to a single vertical vent or flue. In such cases the ordinance recommends that the flue, vent or chimney shall have a cross-sectional area of the largest vent collar, plus 50% of the area of each additional appliance vent collar connected to it.

Combustion Air Ventilation Data

The ordinance sets forth that fixed ventilation shall be provided to any confined space which encloses the appliance by means of a duct or grille which shall have a free area of not less than equal to one square inch per 1000 b.t.u. input rating, having a minimum of not less than 200 square inches.

On location of ventilating openings, the ordinance states:

"Not less than one-half the total required area of the ventilating openings specified in this ordinance shall be located on the prevailing windward side of the building and discharging into the appliance enclosure not more than two inches above the floor of the enclosure and not less than one-half of the total required area discharging to the leeward side of the building from a point in the appliance enclosure not more than two inches above the floor.

Mechanical means for exhausting the enclosure is acceptable. The motor and fan, or blower, shall be capable of moving not less than 20 cu. ft. of air per minute, when the outlet is con-

nected to 20 feet of 3 inch diameter pipe terminating in a 3 inch elbow. The inlet to the fan shall be located not more than two inches above the floor of the appliance enclosure. The motor shall be of the shaded pole type, or if of any other type, shall be of an explosion proof type. Switching mechanism shall be located not less than six feet above the floor."

Furnace Pit Regulations

The "Ventilation" section of the proposed ordinance deals liberally with furnace installation and provides that where excavations are necessary to provide proper clearance for the installation of floor furnaces, that the excavation shall be at least six inches deeper than the furnace and 12 inches clearance on all sides, except the control side, where an 18 inch clearance shall be provided.

Recommendations is made for a 45 degree angle for the sides of the furnace pit. It is also recommended that a trench the entire width of the pit from a point at ground level on the windward side of the house, sloping to the bottom of the pit and up to ground level on the leeward side of the house, shall be provided for cross-ventilation.

"Openings in the sides of the house at ground level shall be provided at trench locations of not less than 200 square inch in area," the ordinance sets forth. "In cases where it is practical to install a drain at bottom of the pit so the gases may be dispelled above ground level outside of building will be deemed as satisfactory means for ventilation."

The section on ventilation concludes with the recommendation that

"... every ventilating air opening required by this section shall extend to the outside of the building and be open at all times and covered with a screen of ¼ inch mesh."

Accessibility Defined

The ordinance provides that access to every room containing a gas appliance, except floor furnaces, shall have a passageway not less than three feet in clear width and six feet, six inches in clear height, and that doorways shall be at least 2½ feet wide by 6. ft., 3. in., high. It is also recommended that an unobstructed working space not less than 3 feet in depth and 6 in height be provided along and in front of every portion of every side of every appliance in which the fire box opening access is located.

A. G. A. Home Service Workshop

By

Jessie McQueen

Home Service Counsellor
American Gas Association

THE A.G.A. Home Service Workshop held in Chicago, January 21 to 24, drew an attendance of 250 from 32 states. Elizabeth J. Lynahan, home service director of The Peoples Gas Light & Coke Company in Chicago, presided as Chairman of the A.G.A. Home Service Committee. That home service operation has variety in its activities was well-illustrated in the wide range of subjects presented in the program and in the strong attendance which held up through four days of program.

Food and equipment demonstrations—research, servicing and installation of gas equipment—and a refresher in home service organization and techniques was supplemented with news and developments of new products presented by speakers from outside the gas industry.

Techniques

The "how" of home service activities—techniques and program ideas were presented in a group of skits and demonstrations. "Mrs. Muffet Takes the Cake," a skit presented by two members of the Michigan Consolidated Gas Company, Harriette Lundberg of Muskegon and Jewel Bartter of Grand Rapids, led to the conclusion that the ultimate in good food preparation is possible for the homemaker who works in a well-arranged kitchen with modern automatic gas appliances.

The program given by The East Ohio Gas Company, upon invitation in the schools of Cleveland, was presented in part on the Workshop program by Melva Haskins and Dorothy Dean. Well-acted and full of comedy, it was easy to see why this program had been so well-accepted in the school system when it was described as extremely effective by Dorothy Jones in her talk on the General Sessions Program during the A.G.A. Annual Convention last Fall.

Basic in the function of the Home Service Workshop is the training for inexperienced women in home service work. For this reason a presentation was given based on the plan used by The Peoples Gas Light & Coke Company, in which for its public demonstrations it uses for part time an inexperienced home service director as a supplement to

the program given by a director with experience. Nellie Fredeen, taking the part of the experienced director, was assisted by Marjorie Lawton in a dramatically-timed sales-slanted demonstration. The features of a new model gas range were used as the basis of presentation.

"How to Build a Radio Program" was the subject introduced by Mrs. Margaret Schrock of The Ohio Fuel Gas Company, illustrating her points with a recording of one of the radio programs carried through the wide area served by this company.

Presenting Gas Appliances

The Serval Homemakers' Institute, under the direction of Clara Ridder, presented a skit in five scenes with the title "Home Service Promotes the Gas Refrigerator." A character, "Tiny Flame" dressed in blue, announced the sequences — a home call, a talk for schools, a radio program, the preparation of newspaper copy, and a club demonstration.

Participants in the skit, which was excellently presented and packed with information and dramatic ideas, in addition to Miss Ridder were: Martha Carnes, Laverne Heady, and Lucille Peterson. Rovilla Reynolds played "Tiny Flame."

Color in the Kitchen

Packed with ideas of color combinations and presented in his well-known authoritative fashion, was the special kitchen planning presentation of the Workshop given by Harry Swenson of The Peoples Gas Light & Coke Company. Mr. Swenson combined design, fabrics, accessories and style items into chart and object displays, each of which proved his statement: "You cannot afford to neglect color, style and decoration in a kitchen. More kitchens suffer from anemia than high blood pressure."

Home Service Under Way

Accounts of activities from 8 utility companies made up a two-part Symposium during the Workshop and the value of these short re-

ports was brought out by many home service women who had come to the Workshop for "new ideas." The subjects discussed were: "Employee Classes"—"Building a Home Service Library"—"Home Service in a Dealer Cooperative Program"—"A Changeover to Home Service"—"Sales Floor Activities"—"Theater Cooperation"—and "Teacher Dinners." The participants were: Katherine Rathbone, Southern Counties Gas Company, Los Angeles, California; Beatrice Cole Wagner, The Philadelphia Gas Works Co., Philadelphia, Pa.; Mrs. Winnell Simmons, Houston Natural Gas Corporation, Houston, Texas; Gertrude Drinker, Dept. of Public Utilities, Richmond, Virginia; Rebecca Sullivan, The Gas Service Co., Kansas City, Mo.; Mrs. Mary Dorn, The Tampa Gas Co., Tampa, Florida; Julia Hunter, Lone Star Gas Co., Dallas, Texas; Flora Dowler, The Manufacturers Light and Heat Co., Pittsburgh, Pa.

The Home Call and the Demonstration

"The Home Call," as the basic activity of the home service program, and suggestions and advice in its conduct, was convincingly explained by Helen Kirtland of The Ohio Fuel Gas Company, in her subject "Techniques of the Home Call." This subject had especial application to the "inexperienced" in home service work who could adapt from ideas suggested, better contact approach in this important phase of work with customers.

"Aids for the demonstration" were discussed in two parts by Gladys Price of the Southern California Gas Company and Mrs. Mary Belle Burnett of The Cincinnati Gas & Electric Company. Miss Price discussed "The Dramatic Touch"—the feature that is essential in a good demonstration presentation. Mrs. Burnett accented the importance of the food display as a summarization of a good demonstration and, in fact, a demonstration in itself when used in window displays or on the sales floor. Charts and slides illustrated Mrs. Burnett's paper.

"Equipment Training for Home Service" brought the schools to the Workshop in a discussion by Mrs.

(Continued on page 18)

ARCHITECTS AND BUILDERS SAY—

“We read about GAS REFRIGERATION every month...in our favorite



TODAY, “complete package” houses—including kitchen, laundry, and, in some cases, air conditioning equipment—are gaining in popularity. That means architects and builders have a rapidly growing influence over selecting the type of appliance to be used. These professional men are in a strong position to recommend Gas Refrigeration . . . and promote *All-Year Gas Air Conditioning* for both home and commercial use.

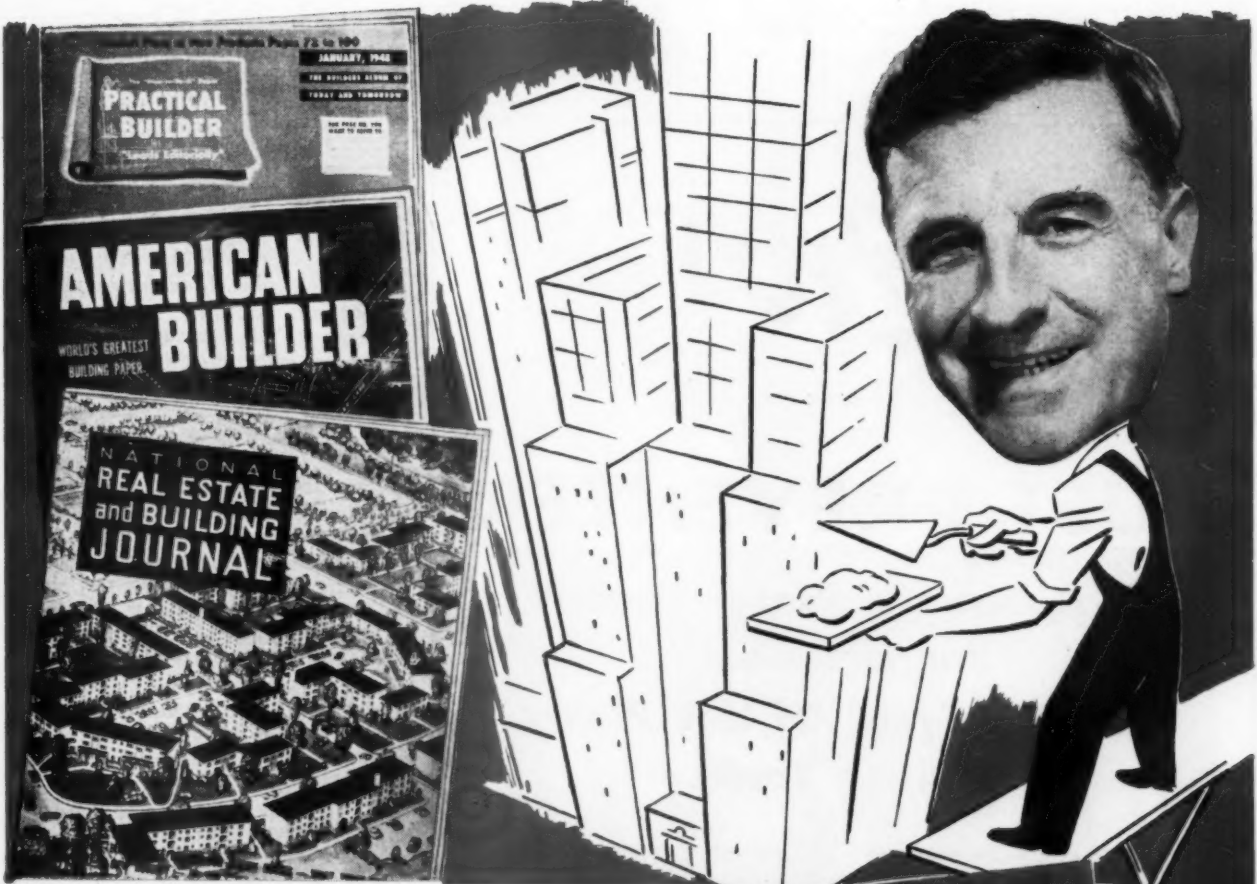
That’s why Servel has made sure that this influential market knows all about the unmatched advantages of Gas Refrigeration and *All-Year Gas Air Conditioning* . . . and the modernity of gas as a fuel. Two impressive advertising cam-

paigns do the job in the six leading architectural and building publications.

Both campaigns feature highly effective testimonials from satisfied Servel users. Gas Refrigerator owners—both old and new—tell of Servel’s silent operation, longer life, trouble-free service, and low operating cost. *All-Year Gas Air Conditioner* owners report how Servel promotes year-round health, comfort, and efficiency.

These ads can start many a sale. Follow through by calling on the architects and builders in your area . . . or mail them the special folders you have on each great gas appliance. If your supply is low, write to Servel, Inc., Evansville 20, Indiana.

and *All-Year* GAS AIR CONDITIONING
professional magazines!"



Servel Inc.,
GAS REFRIGERATORS
All-Year GAS AIR CONDITIONERS
EVANSVILLE 20, INDIANA

(Continued from page 15)

Louise J. Peet, Head of the Household Equipment Department of Iowa State College. This college gives a special equipment course and graduates are found in many gas company home service departments.

"On the Making of Speeches" was the subject well-accepted by the group in a dramatic presentation by Dr. Irving J. Lee of Northwestern University. Dr. Lee discussed stage presence, the planning of a talk, and the effective possibilities of its presentation.

Luncheons

Two luncheon programs were well-attended not only by Workshop Delegates but also by many home economists from the newspapers and magazines in the Chicago area. For the first "Welcoming Luncheon," C. S. Stackpole, Chairman of the Residential Gas Section in the American Gas Association and also Sales Manager of the Consolidated Gas, Electric Light & Power Co. of Baltimore, in Baltimore, Md., addressed "Greetings" to the group and pointed up ways in which home service fits into the activities of sales promotion.

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Range Boilers,
And All Types Of Hot Water
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"Elno" prevents rusty water in domestic and industrial water heating systems. It is a pure and simple rust preventer. It extends the life of galvanized storage tanks, especially where corrosive water conditions exist.

"Elno" is made to fit all makes of Automatic Water Heaters, Range Boilers, and Large Volume Hot Water Storage Tanks.

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that's all. "Elno" is equipped with a hot water fitting.

"Elno" enables you to sell Clean, Rust-free Hot Water Service. "Elno" gives you another talking point, an added selling feature.

There is an "Elno" made to fit the water heater you sell.

Write for prices.

If you want to read the Story of Corrosion, its Causes and Prevention, write for Facts Bulletin No. 102.

The Cleveland Heater Co.

"Elno" Division

2310 Superior Avenue

Cleveland 14, Ohio

The question "What Does Management Expect of Home Service" was posed to an expert, F. X. Mettenet, Vice President of The Peoples Gas Light & Coke Company in Chicago. Mr. Mettenet outlined for the luncheon group the functions and obligations of a sales organization and pointed up the basic philosophy which is needed in our contact with customers. He stated "all sales people must have a basic fundamental—a philosophy of service—service to the customer." Mr. Mettenet also outlined the essential qualifications of a well-grounded home service representative and in conclusion summarized them which were:—in addition to the attitude of willingness to serve and to give—constant self-training—a thorough knowledge of her job and the ability to get along with the customer and with one another.

"Serious and Gay" was the subject of a participation program for the second luncheon. Ruth B. Soule of The Brooklyn Union Gas Company outlined the philosophy underlying the handling of questions or situations that arise every day in home service departments. These experiences, sometimes trivial or even amusing, nevertheless are deadly serious and important to the customer. Typical situations and the handling of them were described, with Miss Soule stressing the patience needed in giving the correct understanding for the inquiry or for the complaint.

Discussion Groups

A small part of any Workshop Program is the opportunity to participate in controlled discussion groups. Meeting on two different afternoons, small groups divided into system, city or one-girl departments, were directed by discussion leaders who had polled beforehand the subjects on which most discussion was desired. Leaders in the seven groups were: Frances Berry, Oklahoma Natural Gas Co., Oklahoma City, Okla.; Mrs. Rita Mataraza, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.; Susan Mack, Boston Consolidated Gas Co., Boston, Mass.; Lucille Boettcher, The Laclede Gas Light Co., St. Louis, Mo.; Elsie Pierson, Central Electric & Gas Co., Lincoln, Nebraska; Katherine Heffernan, Wisconsin Public Service Corp., Green Bay, Wisc.; Kathryn Barnes, Equitable Gas Co., Pittsburgh, Pa.

The Program Committee

Members of the Program Committee presided at the sessions of the Workshop, with Elizabeth Lynahan in charge. Representing the American Gas Association, Jessie McQueen, Home Service Counsellor, set the theme in the opening session "Spotlighting Home Service in the Gas Industry." Highlights of home

service operation — current trends, and a listing of activities now moving slowly but of growing importance, were discussed.

In closing the Workshop, Elizabeth Lynahan emphasized the philosophies of service that had been brought out forcibly and subtly in many addresses at the Workshop, together with techniques of operation — as the summarizing features which

the Workshop Delegates could put into the jobs at home to keep home service on the straightaway. Other members of the Program Committee were Helen Kirtland, The Ohio Fuel Gas Co., Columbus, Ohio; Mrs. Mary Belle Burnett, The Cincinnati Gas & Electric Co., Cincinnati, Ohio; and Eleanor Morrison, Michigan Consolidated Gas Co., Grand Rapids, Michigan.

How to Prepare A Radio Program

By

Margaret Schrock

Radio Director and
Assistant Advertising Manager
The Ohio Fuel Gas Company
Columbus, Ohio

BEFORE we delve into the interesting task of preparing a radio program, it is necessary to acquire radio time. Let us assume that your company has appropriated the necessary funds for this form of promotion. Your next step then is to discuss the proposition of good timing with the Program Director of your local station. If there is more than one station in your community, then you must decide which one reaches the audience you wish to sell—and we use the term "sell" for that is exactly what you must do if you are to have a profitable radio promotion. You not only must sell your company's products but its ideas and services, but we'll discuss that later in more detail. . . . At present, let us concern ourselves with "beaming" our program to the right audience. Choosing the best station is important—choosing the correct time of day and type of program is important, too. Most generally, a program beamed to homemakers will find better acceptance in midmorning or midafternoon. Fifteen minutes in length will give you time to get across your message and still keep your audience asking for more.

About now you are saying, "But what if my company cannot afford a radio program?" And our answer is—if your company can afford newspaper and other forms of promotion, they are missing their best bet by not investing in a good radio program. Actually, it can be the Voice of the organization, expressing in a personal way, the policies of the company, the sales message and ideas of good will. . . . If a "paid for" program is entirely taboo, then an ingenious Home Serv-



Above: Luncheon Table Guests. James F. Oates, Jr., Chairman of the Board of The Peoples Gas Light & Coke Co.; Helen Kirtland, The Ohio Fuel Gas Co., Columbus; F. X. Mettenet, Vice President, The Peoples Gas Light & Coke Co.; Elizabeth J. Lynahan, Chairman of the A.G.A. Home Service Committee.

Below: College Instructors in household equipment visit Workshop. Seated left to right: Mrs. Elaine Knowles Weaver, Ohio State University; Mrs. Louise J. Peet, Iowa State College; Daisy Davis, Ohio State University; Standing left to right: Vivian Marshall, New Orleans Public Service Company; Helen Kirtland and Mary Huck, The Ohio Fuel Gas Company; Mrs. Joan Hodgdon, A.G.A. Testing Laboratories.

ice Director will find a way of promoting her department via radio—and a way which is strictly “for free.” Get acquainted with the Women’s Director of your local radio station. Find out if there aren’t quiz shows, society calendars, or a general women’s program in which you can take part. Remember, you are an authority in the field of Home Economics and your knowledge is sought after by those who are seeking to learn better homemaking. Making your services available to those who prepare public service broadcasts may lead you into valuable radio promotion. . . . So we repeat, make a date with the Director of Women’s Activities of your local station. Let her know you are available when an authority is needed and we’ll wager you’ll find yourself a welcome visitor around the studio.

Preparing the Broadcast

But now for the production of a radio program. The most popular types of broadcasts sponsored by Utilities are newscasts, musicals, and programs devoted to better homemaking. We’ll concern ourselves, today, with the latter. Keep in mind, when writing your script, that a radio broadcast must do one of three things—or it may be a combination of the three. A good broadcast will *entertain, inform* or *educate*. A program designed to hold the interest of a homemaker audience should do all three. Now let us start from scratch; first, select a musical theme. It should be a memorable tune—one that will identify your program immediately. It should be expressive of the message you are about to present and the personality of the broadcaster. Having selected your introductory theme, find yourself a studio announcer who has a way with women. He’ll be a real asset if he has a sense of humor, a knowledge of production and timing—and is *all* man. In preparing your script, you will keep in mind your collaborator’s personality and never put words in his mouth that ring of femininity.

Now that you have selected your theme and captured your man—you are ready to capture your audience. If you are to be the star of the show, make sure you have an “over-the-back-fence” type of delivery. Nothing stilted or formal, or your audience soon will brand you as a high-hat Home Economist with new fangled ideas. Let your local program director decide the merits of your delivery and if you aren’t qualified, ask for an audition of voices. Find one that has a ring of sincerity, the ability to laugh heartily, one that is

personal and convincing and you’ll have little difficulty in holding your audience.

Assuming you now have your announcer, and your star, you seat yourself before your typewriter hoping to produce a 15-minute, effective broadcast in three or four hours. That’s possible if you are a quick thinker, have no interruptions and a wealth of material on hand. . . . Lucky was the day when our company provided our radio department with the latest in dictating equipment. Behind closed doors, we now can “talk” a fifteen-minute program in an hour’s time—providing, of course, that our research has been completed and an outline of our broadcast has been made. In addition to saving precious time, a dictated radio program has the quality of naturalness and sounds less like a written script when heard over the air. *Never* will we return to the laborious task of pounding out a radio script on the typewriter. Of course, a dictated program must be transcribed and if your management frowns on this extra expenditure, better settle on a typewritten production. The Ediphone can be introduced later!

The Schedule

Relax now—for you are about to fill nine pages, 8½ by 11, double spaced, with a 15 minute message. Keep in mind that you must entertain, inform and educate—that’s from the audience’s point of view—but from your company’s viewpoint, you must *sell!* . . . Have a regular format in mind and on paper. For instance, make Monday your day to present the menu of the week and tie in with a give-away recipe sheet. Our company now issues 35,000 weekly radio recipe bulletins to promote gas cookery. Our radio Voice discusses this bulletin in detail each Monday providing opportunities to tie in with gas appliances, gas conservation and the like. Tuesday is known as our “What’s New” broadcast and we prove there *is* something new under the sun. Of course, we inject descriptions of new gas appliances but never out of the mood of the program—never as a cold commercial. We have been thanked many times because we do not break into our broadcasts with out-of-mood commercials, yet we mention gas and gas appliances more than a dozen times during the fifteen minute visit.

Wednesday is our “Story Of The Week” and is either true or fictional. It may be a contribution from a listener or a little anecdote we’ve

run across in the newspaper. It may be a yarn about the origin of a certain food—or a human interest narration. Hit the human interest angle hard and heavy as your women love it! They’d rather hear about triplets born in Padooka than Communism being conquered in Russia—although they’d never admit it!

Thursday is set aside for our Market Basket Report. One and a half minutes of timely copy is prepared for this broadcast the morning of the show. We unload a heap of market basket of food found on the current market—we give prices and suggest ways of serving available foods. We describe new food discoveries after visits to our grocers, the green markets and fish shops. Much of this current information is gained by reading the last edition of the newspaper and calling super markets for late reports. Thursday’s broadcast also dramatizes new gas appliances. We introduce a particular brand name each Thursday by pretending that it is behind the stage curtain. Then without fanfare or spotlight, we draw the curtain and point out some of the distinctive features of the models on our make believe platform. It’s not uncommon for listeners to write us following a Thursday’s program, to tell us that they own a Tappan or a Servel or the particular model we’ve described—others write or call for more details. . . . Yes, your radio Voice must be a saleswoman, too!

Now it’s Friday and we collect all the inquiries of common interest and answer them to the best of our ability. If there aren’t enough questions of common interest or if they don’t lead into the subject of gas—we fake them. That’s a script writer’s privilege and the more ingenious you are, the more questions will be asked which promote your company!

But the proof of the pudding is in the taste—and now, we’d like to give you a taste of our current broadcast. We’ve brought along a recording of an actual program broadcast several weeks ago. It’s not startling, nor pompous—it lacks the grandeur of national broadcasts, but its hominess and informality has developed good listening habits among our listeners. Our faith in our program is backed by a generous Hooper rating (radio’s yardstick), and by the contents of some 12,000 letters received annually—not mentioning the numerous visits and telephone calls. (*The address was followed by a 15 minute recording*).

Presented at the A.G.A. Home Service Workshop, Chicago, January 21-24, 1948.



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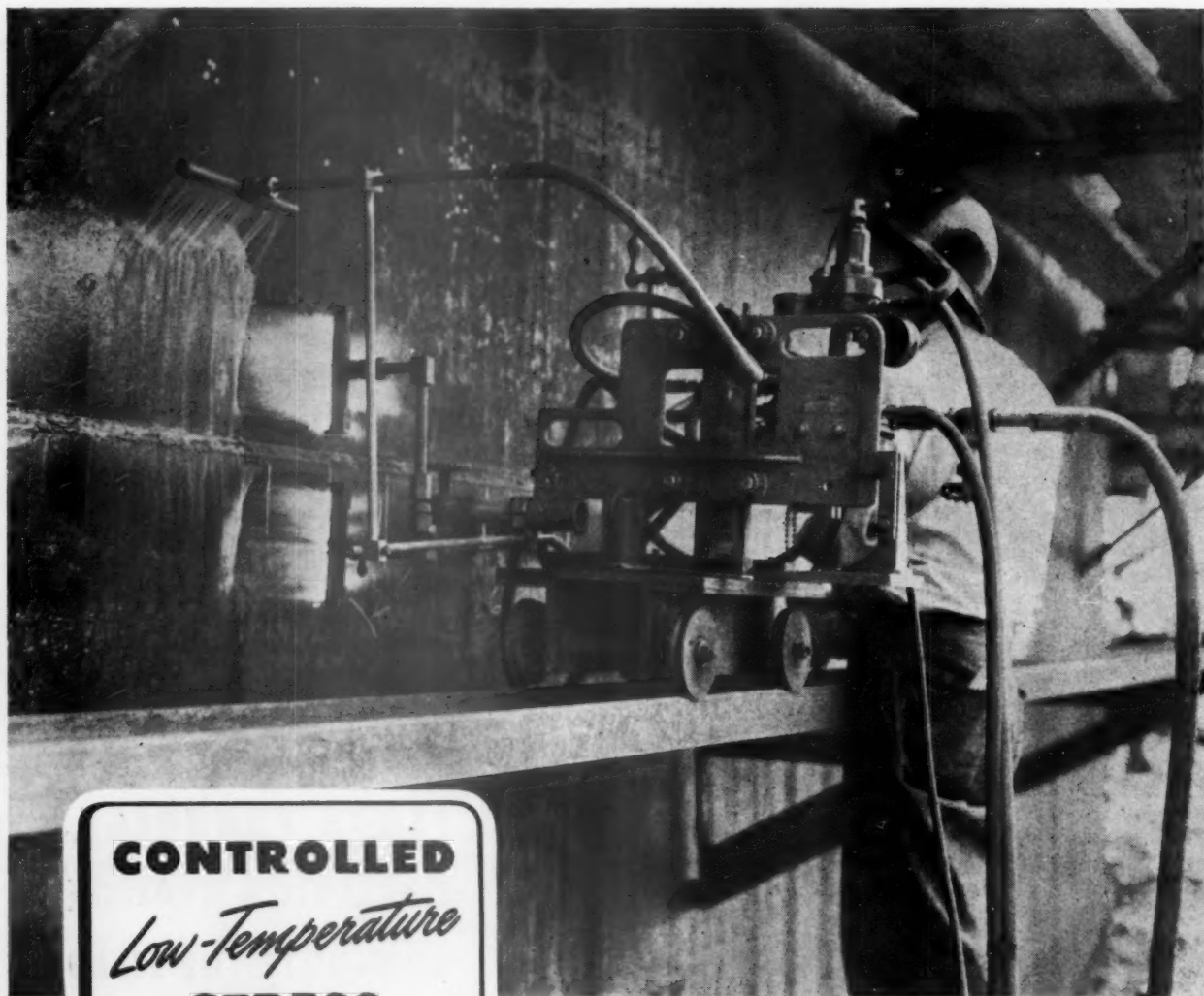
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Stacey Brothers
ALL-WELDED GAS HOLDERS

Accurate Wide Range Metering of Natural Gas with the Differential Type Meter

By

L. K. Spink

The Foxboro Company
Foxboro, Massachusetts

THE DIFFERENTIAL type of flow meter, although it has many qualifications which are desirable for measuring large volumes of gas, has certain limitations. This paper will discuss two of these limitations and means used to overcome them. Both arise from the fact that the differential type flow meter is inherently a rate measuring device. Total flows are obtained by secondary operations such as computation of charts or automatic integration of the meter readings.

Problem 1. Measuring Rapidly Varying Flows

Because the rate of flow bears a square root relationship to differential, on widely varying flows, rates obtained from average differentials will be inaccurate. That is the square root of the average is not the same as average square root.

A very casual examination of the problem might lead to the conclusion that the uniform flow scale type of meter which extracts the square root of differential and records this square root on the chart could be damped so as to read an accurate average of rapidly fluctuating flow, but this is not the case with existing mechanisms, because, due to the mechanical means for extracting the square root, the rate of response is not the same at high flows as at low flows.

Therefore, the accurate operation of the differential type meter is limited to flows which are changing slowly enough so the instrument can follow them with reasonable fidelity. Also, if the total flows are obtained by computing the charts, the time intervals involved in the changes must be readable if accurate total flows are to be obtained either by the observation method or by mechanical integrating devices, such as planimeters or the McGay integrator. Integrating devices which operate directly from the meter mechanism can give accurate totals even though the

This paper discusses two problems in the measurement of widely varying flows with the differential type meter.

First is the measurement of rapidly fluctuating flows. Damping of the meter response and various methods of reducing the amplitude are discussed.

Second problem is that of obtaining readability of low flows without over-ranging at high flows. Several devices for accomplishing this with the differential type flow meter principle are discussed.

charts are incapable of accurate interpretation, provided the mechanism which governs the integrator follows the changes in rate of flow.

The amount of fluctuation which can be averaged out by mechanically damping the meter mechanism is much greater than popularly believed, however. For instance, a fluctuation of differential amounting to as much as 60% of the operating differential can be averaged out with an error of less than 2%.

As an example if the differential is changing on a uniform cycle from "70 to 130", the average differential, "100", represents the actual average flow within approximately 1.2%. If the flow is changing on a sine curve, the error is much less.

If, however, the actual rate of flow drops to zero, as is often the case when "off and on" control is used for operation of the process or equipment using the gas, or when an extremely narrow throttling range pressure regulator with friction in the

mechanism is used, the error introduced by averaging may exceed 40%. In such cases the readings of the meter cannot be taken as an indication of the actual change in rate of flow, because any recording meter must have a certain amount of inherent damping in order to give readable flow records.

Contrary to general belief, the use of mechanical damping in the meter body does not increase this error. The error is present whether the differentials are averaged by observation or by throttling of the meter mechanism.

Mechanical means of damping are to be preferred, because this method automatically takes into consideration the duration of the high and low periods of flow. Quite often an unbalanced wave form (that is one in which the period of time at the low flow is much greater than that at the high flow or vice versa) appears merely as a broad line on the chart record, and the chart reader, whether operating by the observation method or using an automatic chart integrating device is faced with a pure guess as to the proper point in the wide line to use as an average.

Eliminating or Reducing the Fluctuations

There are several possible remedies for this situation. The first and most obvious remedy is the substitution of a full throttling automatic control mechanism for "on-off" control. This is not always practical. For instance, in glass furnace operation, a reversal of the flow through the furnace is required for economical operation and the shut-off period on the fuel is required for safe operation.

If the durations of the zero flow periods are known, reasonably accurate results may be obtained by averaging the top of the record and multiplying the computed flow by the ratio of the actual time gas was flowing to the total time. This meth-

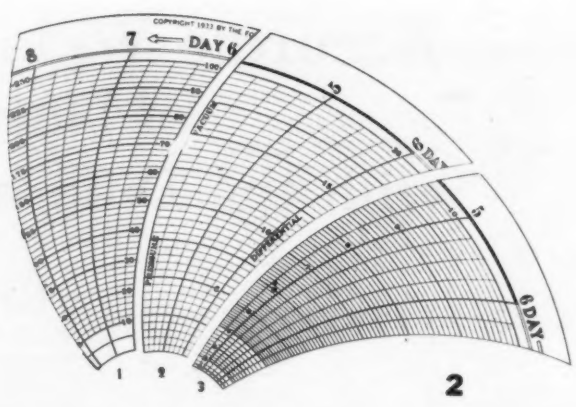
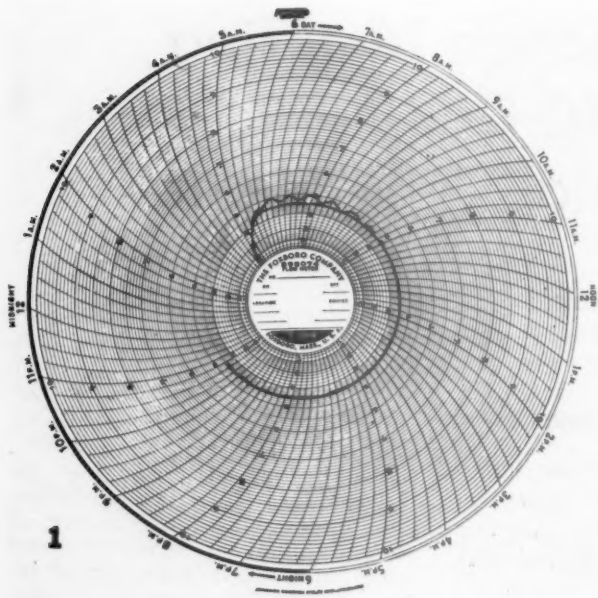


Figure 1. Chart of Dual Flow Meter Showing What Happens When Off-On Control Action is Introduced. High Speed Chart Drive Was Used. Record Shows Effect of Inherent Damping.

Figure 2. (1) Uniform Flow Scale Chart. (2) Differential Scale Chart For Square Root Flow Scale Meter. (3) Square Root Flow Scale Chart For Square Root Flow Scale Meter.

od has been used with surprising accuracy in the measurement of molten sulphur in sulphur mining operations.

Another method lies in the use of cushioning capacity between the meter and the point of consumption. The efficiency of this capacity in producing a cushioning effect is increased by the use of throttling means (a throttling orifice, pinched valve, or pressure controller with wide throttling range) immediately down stream from the orifice meter. The use of this throttling range pressure controller adjacent to the point of consumption maintains constant pressure on the burners or other equipment using the gas.

Problem 2. Readability of Meters on Widely Varying Flows

Another limitation of the differential type meter is its readability. A common error in thinking is to assume that because a meter reads zero at zero flow and perhaps 10,000 cubic

feet per hour at maximum flow its rangeability is zero to 10,000 cubic feet per hour. The error in this line of reasoning is obvious if a quick computation of the reading of the meter at 100 cubic feet per hour is made. Since this flow is 1/100 of the maximum, the differential would be 1/10,000 of the maximum, and the recording pen would not move perceptibly off the zero circle.

The square root relationship between flow and differential greatly narrows the usable range of flow readings.

Assume that the average operator can read a fluctuating differential record at best to within $\pm 1/100$ of an inch, and interpreting this in terms of percent of full chart scale, the possible error would be $1/4$ of 1% of full scale differential. At 5% of full scale differential this would be 5% of actual differential or approximately 2 1/2% of flow. Assuming this to be the minimum usable differential, the flow rangeability of

the meter calculates to be slightly less than 4 1/2 : 1.

It may be argued that with a meter equipped with automatic integrator, the accuracy is not dependent upon the readability of the chart. The rebuttal to this argument lies in the fact that the differential mechanism must be calibrated against some standard at the factory and must be rechecked time and again after it is placed in operation. It is axiomatic that it would be impossible to calibrate consistently closer than the instrument could be read.

Methods of Increasing Readability

The uniform flow scale meter furnishes a partial answer to this problem. By mechanical means, the spacing at the lower readings of the chart are spread out and the readings at the outside of the chart narrowed down proportionately. This increases the readable range of flows to approximately 10:1.

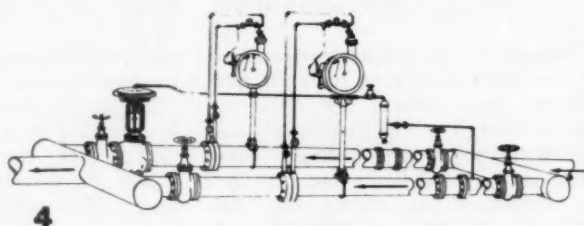
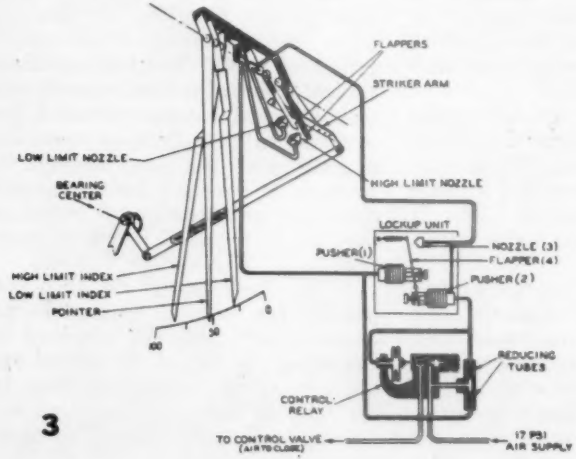


Figure 3. Pneumatic Lockup Mechanism of Differential Limit Controller.

Figure 4. Multiple Meter Run Installation Using Differential Limit Controller For Automatic Operation.

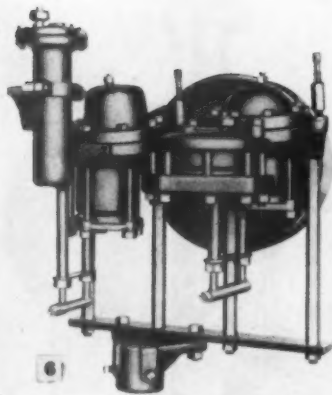
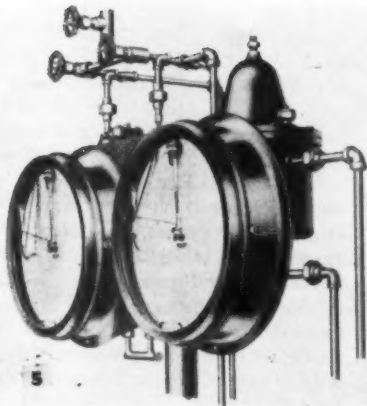


Figure 5. Two Meters Of Different Ranges In Wide Range Meter Setting. Figure 6. Dual Meter — 20" and 100" On Same Case.

This solution has practical drawbacks which make it a questionable solution of the problem. The mechanism is inherently more complicated and more difficult to maintain in calibration than that of the simple meter which records differential on a linear chart. Other methods have proved more popular in the measurement of natural gas.

Probably the simplest and most obvious method of adapting the standard differential type flow meter to wide ranges of flow is the use of multiple meter runs. The first meter run is equipped with an orifice small enough so that minimum flow readings will not be recorded in the lower and congested part of the flow chart. When the flow capacity of the first meter is reached, a second meter is cut in. This secondary meter is such that the readings of the two meters operating in parallel will drop back to the minimum usable portion of the chart. This increases the flow rangeability by a geometric proportion, and additional meter runs could be added to obtain any desired flow rangeability.

Unless this system is made automatic, peak flows on sudden and unpredictable load changes may be lost during the interval before the changeover is completed.

To make this switchover automatic, the differential relief valve was developed. The early models were a modification of the differential regulator principle but equipped with a long arm with a rolling weight which was presumed to roll from one end of the lever to the other to give a dead space in the control mechanism. Slow changes in differential were found to permit this rolling weight to get in the dead center position and oscillate giving cycling control which made records completely unusable. Sudden changes in differential have been known to hurl the weights off of the arm with such violence as to cause danger to nearby personnel.

The need for a more positive, more predictable, and easier to adjust mechanism was met by the automatic differential limit controller which closes the valve by pneumatic pressure and opens it by the force of a spring. The high and low differential limits may be set precisely on this type of device to obtain the maximum rangeability from the minimum number of meter runs. When more than two meter runs are used, the need of proper cascading action

of the limit controllers makes it almost essential that the set points be predeterminable with extreme accuracy.

One of the disadvantages of the multiple meter run system is the number of charts which must be computed. It would seem desirable and perfectly within the realms of possibility to develop a controller which would shut off the first meter run as the second and larger meter went into operation and would put it back into operation and cut out the larger meter run when the flow dropped below the readable portion of the chart of the larger meter.

Flow rangeability may be gained by the use of two differential gages of different ranges both operating from the same orifice. Common range combinations are: 20 inches of water and 100 inches or 10 inches and 50 inches. The high flow readings are read from the high range chart, and when the differentials drop to values which record on the low range gage, the flow readings are taken from this chart.

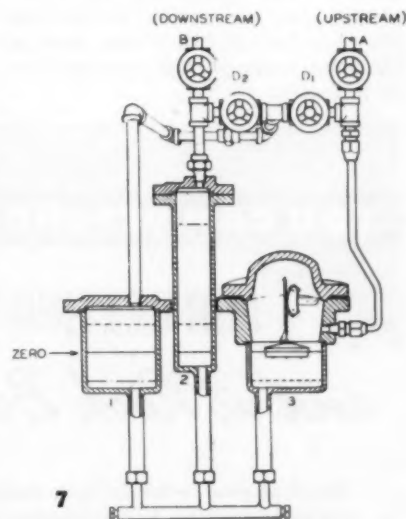


Figure 7. Diagram of Chamber Construction of Two Range Meter.

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This combination has been consolidated in a single instrument. Usually this instrument has three pens: one recording static pressure, one recording the high range differential, and the other recording the low range differential. This design simplifies the problem of filing charts and eliminates difficulties of synchronization of clocks.

For locations where weekend loads, holidays, etc., make the periods of low flow predictable, a meter with a single differential pen, the range of which may be changed by manipulation of valves, may be used. When using this type of meter, the range combination of 25 inches and 100 inches is convenient because it results in a flow-range ratio of 2:1.

A system of measurement which should be mentioned in any discussion of means of measuring wide ranges of flow is the adjustable orifice plate. This is in reality a highly refined modification of the gate valve principle. It is equipped with a vernier scale which permits determining the area of the opening to extremely close limits. The coefficient of this flow restriction is read for any position of the stem from a blueprint curve plotted from hydraulic test data.

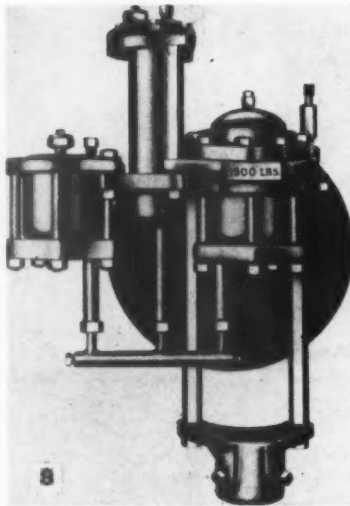


Figure 8. Duo-Range Meter Body.

The recording and/or integrating instrument used with the adjustable orifice may be equipped with a control mechanism similar to that of the differential limit controller to automatically reposition the adjustable orifice in predetermined steps to keep the instrument readings within the range of operation of the integrator and/or in the readable portion of the chart. The same control mechanism changes the speed of operation of the integrating mechanism.

Conclusion

Although the differential type flow meter has many handicaps as the means of determining total flow, popularity of this type of meter is adequate proof that the advantages more than counterbalance the disadvantages. The simplicity, accuracy, freedom from wear, ease of checking, low cost, flexibility of flow range, and other desirable features make it first choice of metering equipment whenever its limitations can be overcome. There is much more work to be accomplished, but we believe manufacturers of the differential type flow meter can be proud of the progress so far.

Contributed by the Fuels Division and presented at the Spring Meeting, New Orleans, La., March 1-4, 1948, of The American Society of Mechanical Engineers.

Portable Pumps. Bulletin U47 issued by Marlow Pumps, 207 Greenwood Ave., Ridgewood, N. J., describes self-priming portable pumps designed for utility company maintenance.

Lightweight aluminum construction, minimum floorspace requirements, and governor-controlled 4-cycle engines are among the features of the line. The four models are guaranteed to prime and reprime automatically at suction lifts to 28 feet high at sea level.

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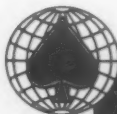
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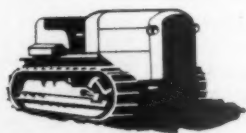
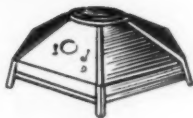


Come On In Dad!

The Liquefied Petroleum Gas Association, which is sponsoring the LP-Gas International Trade Show to be held in Sacramento, California, extends to all members of the American Gas Association a cordial invitation to visit and exhibit at this first **great** annual event, held in a **grand** scenic state at the most pleasant time of year.

Because of the kinship felt by those who operate beyond the gas mains for those who supply manufactured and natural gas in another domain, and because most appliance and equipment manufacturers supply both types of equipment, the L.P.G.A. membership is happy to share the show with members of A.G.A.

Membership in L.P.G.A. or A.G.A. is not a prerequisite to exhibiting. The theme of the show is **LP-Gas In Action**, and bottled gas will be available to all exhibit spaces. Exhibits may be arranged indoors or out, all under cover, and spaces are being assigned on the basis of first come, first served. To avoid disappointment in a show which will be a sell-out, **MAKE YOUR SPACE RESERVATIONS NOW.**



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LP GAS INTERNATIONAL TRADE SHOW

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Simple Jet Devices Prevent Freezing of Sealing Water in Gas Holders

By
C. G. Blatchley

Engineer, Jet Department
Schutte and Koerting Co.

AN EFFICIENT and inexpensive means for preventing the sealing water in gas holders from freezing is provided by the use of steam jet syphons and water jet eductors.

For a number of years the Philadelphia Electric Company has effectively used, in both the West Conshohocken and Chester plants, gas holder heaters of these types.

Individual plant facilities, such as the size of the holder and the necessary equipment available for providing motive steam or hot water determine which of the methods should be employed. The jet syphon condenses steam to agitate and heat the sealing water, while the jet eductor utilizes water under pressure for the same purpose.

At the West Conshohocken plant of the Philadelphia Electric Company both systems are employed with very satisfactory results. Steam jet tank and cup heating syphons, made of brass, are used on the five million cubic foot gas holder, and water jet eductors are used on the ten million cubic foot holder. Operation of the syphons and eductors is similar in that both employ the jet principle.

Steam or water under pressure flows through the nozzle into the venturi tailpiece at high velocity. The

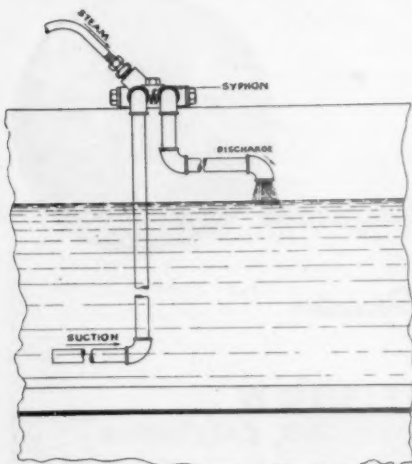


Fig. 1: Drawing shows the cup heating syphon in operation.

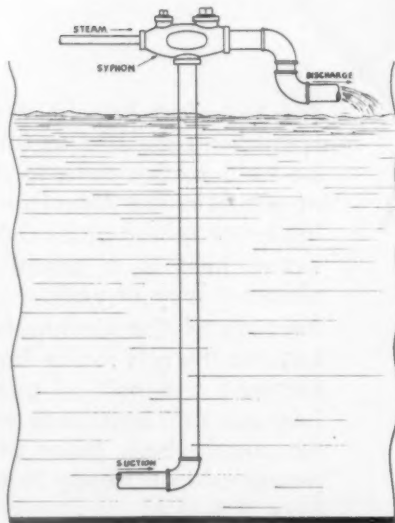


Fig. 2: Drawing shows the tank heating syphon in operation.

suction created entrains water from the bottom of the tank or cup through the suction line and discharges at the top. A double function is performed in that the water is both agitated and heated. With the eductor, agitation alone is sometimes sufficient to prevent freezing; however, during severe cold, pre-heating of the motive water is necessary. Both systems have operated efficiently under sub-zero temperatures encountered during the winter months.

Eight water jet eductors are used on the tank of the ten million cubic foot holder, while seven eductors are used on each lift. These are spaced at equal intervals around the tank or cup. Motive water for the eductors comes from the gas compressor cooling system. This water temperature ranges from 87° to 125°F.

On the water jet eductors special pressure nozzles are used to assure uniform flow in each cup allowing for elevation differences.

Eight steam jet syphons are used on the tank of the five million cubic foot holder, while four are used on each lift. Motive steam for the syphons is obtained from the plant steam boilers.

Installation of the cup and tank heaters is simple. Steam pipes are installed on the holder frame and are connected to the cup heaters through a flexible steam hose from the vertical header on the framework of the gas holder. The cup heaters are permanently fastened to the top of the cup and short pipe connections, extend into the cup for suction and discharge, as shown in Fig. 1. Since the tank heater does not move, rigid piping is used and the heater is permanently attached to the side of the tank above the surface of the water, as shown in Fig. 2.

Fig. 3 shows one of the cup heating syphons installed on the first lift of the five million cubic foot holder. The heater is indicated by the arrow. The heater is discharging below the water surface requiring the anti-syphon valve in the steam line. Each cup contains approximately 6,000 gallons of water and the heated perimeter of the tank 1,300,000 gallons.

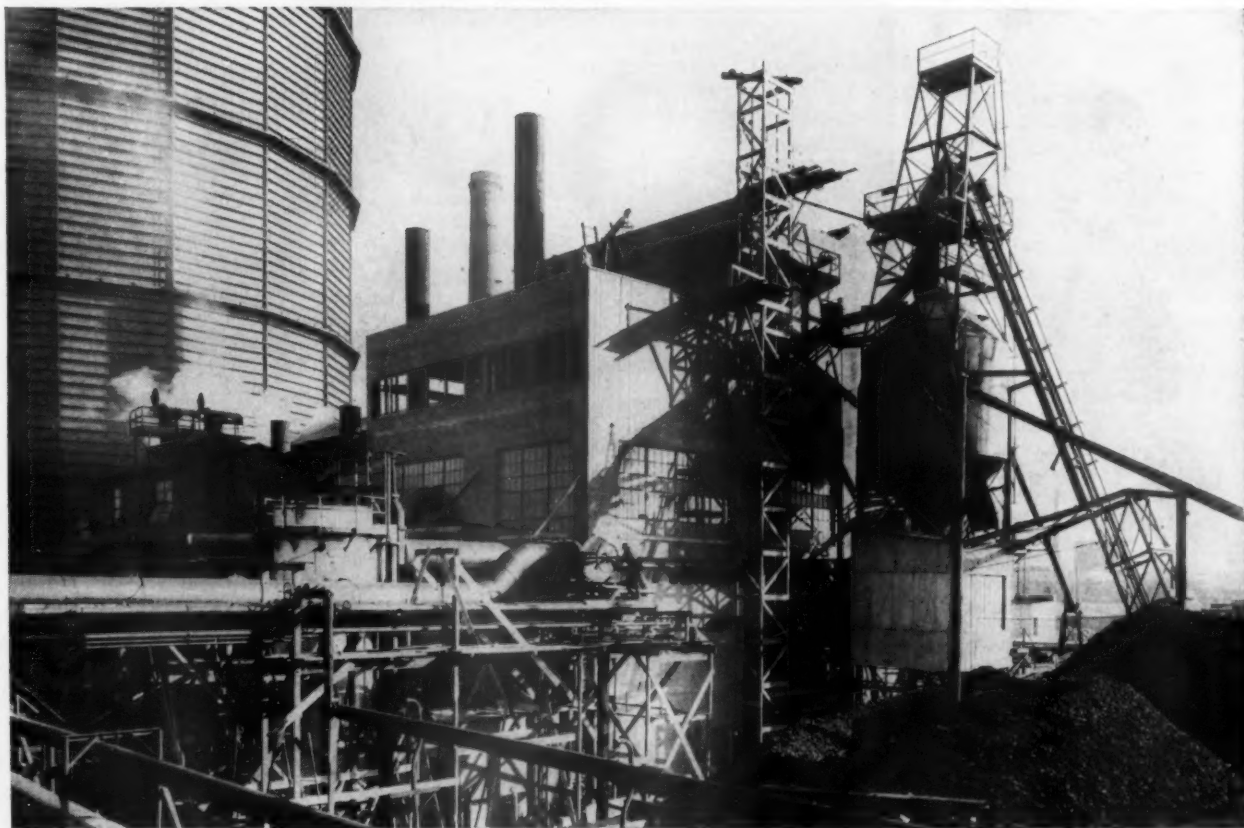
At the West Conshohocken plant, the system is turned on when the temperature falls below 35°F. Each year the syphons and eductors are cleaned and, if necessary, minor repairs are made in the system.



Fig. 3: Arrow indicates position of one of four steam jet syphons installed on the five million cubic foot holder.

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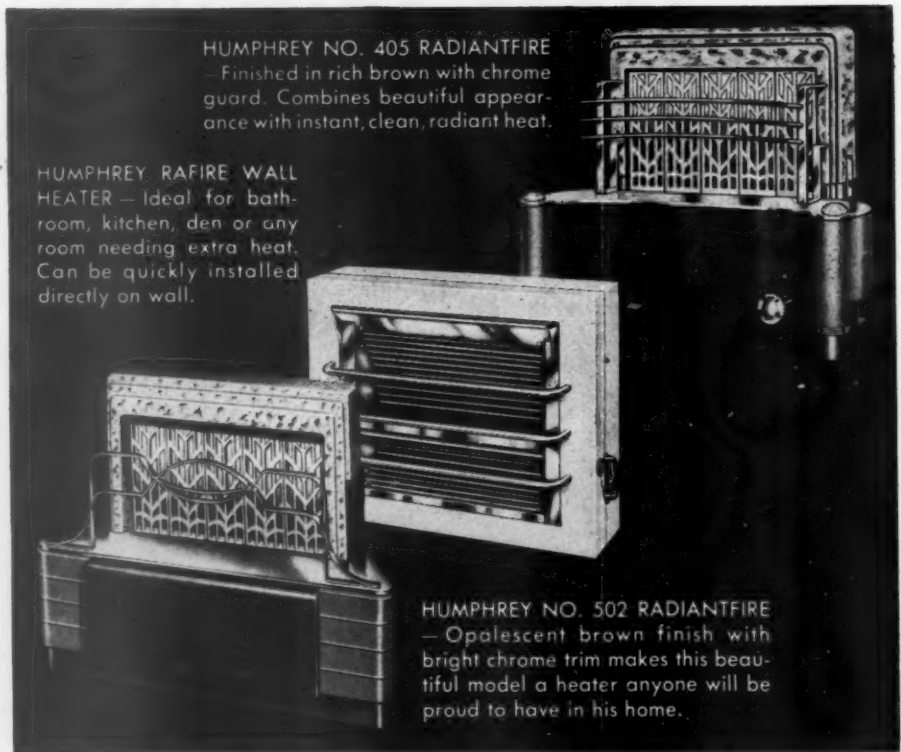
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Recent Court Decisions Affecting Gas Utilities

When Injured Employees Receive Compensation

By

Leo T. Parker

Attorney at Law
Cincinnati, Ohio

RECENTLY a reader wrote an interesting letter which contained this sentence: "Some months ago we wrote a letter asking for legal data needed to win a law suit. The higher court cases you gave us assisted us greatly and we won the suit. Now we are confronted with a suit by an employe who claims he deserves either damages or compensation for an injury. What is the law on this? Can you include in this review a few higher court cases which involved suits against gas companies for damages, and also for compensation?"

A broad and general answer to this question is: An employe may recover compensation, under the State Workmen's Compensation Act, for an injury sustained while he was acting within the scope of the employment. But no person is entitled to damages unless the injury resulted from *negligence* of the gas company.

Needless to state, we know that this general statement does not satisfy this reader. And, so for the benefit of readers, we shall review late and leading higher court cases which differentiate between damages and compensation suits.

Assumes Risk

Modern higher courts consistently hold that all employes assume the natural and obvious dangers of their work, with special respect to *damage* suits. Hence, while an employe can recover compensation under the State Workmen's Compensation Act for injuries sustained while doing dangerous work, he cannot sue and recover damages from the gas company.

For illustration, in *Reilly v. Philadelphia Suburban Gas & Electric Company*, 145 Atl. 576, the testimony showed that a gas company decided to replace two of its boilers with oil-burning furnaces. In mak-

ing this change certain side walls were removed which left a bridge wall standing in front of one boiler. It had been attached to the side walls by rods, and the removal of a T beam from under the front edge of the bridge wall had the wall left insecure. This wall was subjected to vibration from the operation of the plant, and from railway trains passing near by.

While a brick layer was laying brick the wall fell and killed him. His dependents sued the gas company for damages.

No evidence was submitted proving the exact reason the wall fell, but the testimony showed that the employe was experienced in the work of building walls for boilers. In view of this testimony the court held the gas company not liable, saying:

"The deceased was a competent brick mason of 13 years' experience, and was employed several weeks each year around the walls of boilers. In addition, he had for years done work around this plant, and had been employed there off and on during the making of the improvements in question. . . . With full knowledge, full opportunity to know all the conditions, he voluntarily placed himself in a position of danger, as the sequel showed, and thereby assumed the risk. . . . A servant who has had the full opportunity of knowing the danger and risk and makes no complaint to his employer as to the danger to which he is exposed, but continues to work voluntarily notwithstanding, assumes the risk of injury from the danger to which he is exposed."

Must Warn Employee

Generally speaking, gas company officials are expected by the law to notify employes of any unusually and known dangers, of which the employes have no information or knowledge.

For instance, in *Dobbie v. Pacific Gas Company*, 273 Pac. 630, the testimony showed facts, as follows: A sheet metal worker was employed by a contractor who had a contract with a gas company to reconstruct a blast pipe. The sheet metal worker filed suit against the gas company to recover damages for personal injuries sustained while performing work.

The testimony disclosed that on the roof of the generator building, where the employe was injured, there was a glass skylight that the gas company officials had knowingly permitted to become covered to a depth of several inches with cinders and soot discharged from its gas generators. This rendered the skylight invisible to any person on the roof of the building and caused the same to appear to be a part of the solid portion of the roof. The employe being unaware of the dangerous condition of the roof stepped upon the skylight which broke precipitating him to the floor below, and causing his injuries.

The gas company attempted to avoid liability by contending that the injured employe was guilty of contributory negligence. However, notwithstanding this contention, the court held the employe entitled to recover damages for his injuries, stating important law, as follows:

"The owner of premises is not an insurer of the safety of an invitee, but he owes him the duty to exercise ordinary care in seeing that the premises are in a safe condition. . . . A person so invited upon the premises of another may recover from such owner for any injuries received from the dangerous condition of the premises known to the owner and not known to the person so invited; but such owner is not bound to keep his premises absolutely safe. . . . The responsibility of such owner for the safety of such person in such a case is not absolute; he is only required to use ordinary care for the safety of the persons he invites to come upon the prem-

ises. If there is a danger attending upon such entry, or upon the work which the person invited is to do thereon, and such danger arises from causes or conditions not readily apparent to the eye, it is the duty of the owner to give such person reasonable notice or warning of such danger. But such owner is not required to give to the invitee notice of warning of an obvious danger."

Independent Contractor

It is generally believed by gas company officials that the company is relieved from damage liability where the injured person was hired and paid by a contractor. However, this is not so.

For example, in *Seabury v. Natural Gas Corporation*, 127 So. 25, it was proved that a truck owner rented the vehicle and its driver to a gas company at a stipulated rental per day.

The driver was injured while performing his regular duties, and sued the gas company to recover compensation. The counsel for the company argued that the owner of the truck was an independent contractor and therefore solely liable to the injured employe. However, the court held the gas company liable, saying:

"One employing an independent contractor is liable for the death of one working for the contractor, if the workman was an employe and not himself an independent contractor."

For instance, in *Conveyors v. Industrial Commission*, 228 N. W. 118, it was disclosed that a gas company's employe named Collins fell into a tank containing gas. An employe, named Galko, was killed when he attempted to rescue Collins. Galko's dependents sued the gas company for compensation. The company's counsel contended that Galko was not acting within the scope of the employment when the accident happened and therefore not entitled to compensation. However, the court held the company liable and stated the following established law:

"The Workmen's Compensation Act defines an 'employer' as one who has any person in service under any contract of hire, express or implied, oral or written, and an 'employe' as one who is in the service of another under any such contract but not one whose employment is not in the usual course of the business of his employer. . . . There was no express contract of hire for that work and no agreement to pay a wage therefore. But there was a contract of employment by implication. . . . This arises from the following considerations: It is the duty of an employer to rescue his employe from a position of imminent danger in an emergency. . . . It was his (Galko's) duty towards his employer to act immediately and with greatest possible speed to rescue Collins, who was not known to be beyond resuscitation."

Not Within Scope of Employment

It is well established that an employe is not entitled to compensation or damages for an injury, unless the accident resulting in the injury arose from the scope of the employment.

For illustration, in *Nevins v. Roach*, 228 N. W. 709, it was disclosed that an employe was injured while making a trip to his own home, when on an errand for the gas company. The higher court held the employer not liable, stating important law as follows:

" . . . The test of the liability of the master for his servant's acts is whether the latter was at the time acting within the scope of his employment. The phrase 'in the course or scope of his employment or authority,' when used relative to the acts of a servant, means while engaged in the service of his master, or while about his master's business. We think it clearly appears from this record that Maxon (employe) was not acting in the course of his master's service, or incident thereto, at the time this accident occurred."

Must Prove Negligence

Various courts have held that unless the evidence clearly indicates that an employe or other person was injured by negligence of gas company officials or employes, the injured one is not entitled to recover damages.

For illustration, in *Hernandez v. Southern California Gas Company*, 296 Pac. 665, it was shown that for some months the county sanitation district had been engaged in laying a sewer. The sewer trench was dug, and the water was pumped out so that the pipe could be laid at the trench bottom which was about ten feet below the surface of the ground. One afternoon a county employe took a lantern, tools and other materials, and entered the sewer to caulk the joints. He had worked about two hours and was inside of the sewer at a point approximately one hundred and fifty feet from the manhole when an explosion occurred and he was seriously burned.

He sued a gas company for damages and introduced some evidence tending to show that the gas company was negligent in permitting gas to escape into the sewer line. The lower court held the gas company liable, but in view of the fact that the employe failed to prove conclusively that a leak in the gas company's line had led to the sewer, and caused the explosion, the higher court reversed this verdict, and said:

"The plaintiff was bound to introduce evidence showing, not only that defendant's (gas company's) gas was allowed to escape, but also that it entered

and accumulated in the sewer pipe. . . . Assuming that the defendant was negligent in having some leaks in its pipes, no evidence was introduced showing that any of those leaks led to the sewer. . . ."

Gas Company Liable

On the other hand, a gas company is liable for injuries caused by explosion of gas which leaks from its mains, providing convincing evidence is introduced to prove that the company officials and employes were negligent.

For illustration, in *Cracraft v. Wichita Gas and Electric Company*, 271 Pac. 273, it was disclosed that a plumber met his death by an explosion which entirely wrecked a building in which he was working for a grocery store. On the other hand, the facts developed by the evidence indicated that gas had entered the basement of the building, in which the grocery store was operated, through a soil pipe connecting with the city sewer, and further that the gas escaped into the basement through holes cut in the soil pipe by the gas company's employes. It was ignited by candle in the hands of the plumber who had been employed by the owner of the store, to make necessary repairs.

In holding the gas company liable, the court said:

"Following the explosion, a kind of vapor was observed rising from a vent pipe. This was lighted and burned steadily to a height of about 18 inches. Immediately after the explosion the defendant company (gas company) began work on its lines in that vicinity."

City Ordinance

Contrary to the opinion of a majority, a gas company is not always liable in damages for an injury resulting from the company violating a city ordinance.

In other words, the mere fact that a gas company violated a city ordinance does not always result in a verdict in favor of a person whose injury was caused by the violation.

For example, in *Miller v. East Ohio Gas Company*, 172 N. E. 300, it was disclosed that a city ordinance provides that gas meters shall be placed in private residences "four (4) feet above the floor and as near a window as possible . . ."

A woman tenant in an apartment building was seriously injured when she stumbled over a gas meter which was only thirty-two inches from the floor. She sued the gas company for damages on the grounds that the latter was liable solely because it had violated the above mentioned city ordinance. The court held the gas company not liable, saying:

"The gas meter, whether at thirty-two inches or four feet above the floor, has no connection, in our judgment, with the safety of the tenant. It is not unreasonable to say that one of the purposes of the placing of the gas meter was to establish uniformity, but it cannot be said that the height of the gas meter had any effect or was intended to bear any result which might affect the safety of the tenants."

Gas Company Is Liable For Motor-Truck Injury

It is well settled that a gas company is liable in damages for injuries negligently caused by operators of its motor vehicles.

For instance, in *Embry v. Reserve Gas Company*, 124 So. 572, it was

disclosed that a driver of a gas company's motor-truck received instructions early in the morning by telephone to take the company's truck and get a load. He started to the destination, but while going from the company's garage to his home he carelessly ran over a child who was playing in the street.

The gas company attempted to avoid liability on the contention that the driver was not acting within the scope of the employment when the accident occurred. However, the court held the gas company liable, stating the following important law:

"We are of the opinion that at the

time of the accident the driver of the truck was acting in the scope of his employment. His day's work had already begun by his supplying the motor of the truck with water and oil and gas and taking the truck out of its storage garage and receiving instructions from his employer what the day's work was to be. . . ."

\$19,000 Damages

It is true that injuries caused by the negligent operation of motor trucks often result in allowance of extraordinary damages. For this reason, particularly, gas company officials should exercise more than ordinary care to employ competent drivers.

For illustration, in *Kontur v. Public Service Electric Gas Company*, 145 Atl. 472, it was disclosed that the owner of a garage was called out with his wrecking car to tow another car that was stalled on the public road at night. He backed his wrecking car up to the other car and was between the two cars when suddenly a motor truck, owned by a gas company, ran into the rear of the car crushing the garage owner between the two vehicles. He was confined in a hospital for almost a year.

The lower court held the gas company liable for \$19,000 damages and the higher court sustained this verdict, saying:

"He seems to be out of business permanently, and his earnings have dropped from some \$75 a week to \$25 a week. The medical and hospital expenses aggregate nearly \$2,000. We do not consider the verdict under the circumstances to have been excessive."

Book Review

"*Air Conditioning*" by Herbert and Harold Herkimer. Published by Chemical Publishing Co., Brooklyn 2, New York; 692 pages 5½" x 8½" with complete index. Price \$12.

Provides required information on every phase of air conditioning, e.g., estimation, sales, promotion, installation, supervision, service, etc. It reviews the laws of chemistry and physics associated with air conditioning, and then goes on to the practical aspects of the industry, such as equipment, materials and costs.

The subject matter has been carefully selected to give well-balanced and systematic training to students of air conditioning engineering, and to help engineers and other technical men to solve their problems in designing and repairing equipment, selecting materials and estimating costs. The book is replete with problems and their solutions, tables and illustrations.

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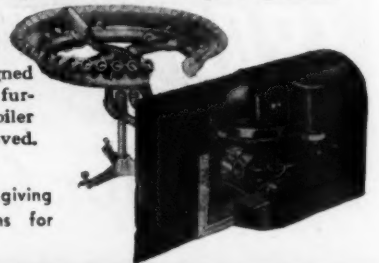
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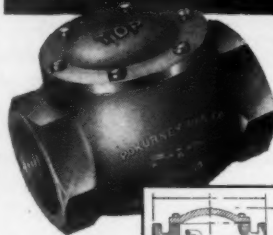
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3117 Clybourn Avenue, Chicago 18, Illinois

Cooling Water Requirements for Natural Gas Booster Stations

By

A. V. Mueller

The Deming Company, Salem, O.

THE importance of natural gas for industry and homes became quite pronounced during the winter of 1946-47 when there was a shortage of fuel,—coal as well as oil and gas.

Natural gas is found in many states of the United States and carried by pipe lines through so-called compressor stations where it is compressed to a higher pressure for delivery to the consumer, sometimes great distances away.

In these stations the gas goes through various processes which require the operation of machinery and equipment, such as gas engine driven compressors, cooling towers, pumps, etc.

The station described in this article belongs to the Columbia Gas System and is operated by the Ohio Fuel Gas Co., Ashland District, Mr. A. R. Fitzgerald, Chief Engineer.

The older of the Columbia Gas System's stations are equipped with regular centrifugal pumps, such as vertical sump pumps of the dry pit type and horizontally split casing double suction pumps. Both types require a great deal more space than vertical turbine pumps which are submerged and do not need any foot valves nor suction lines and are always primed and ready to start.

The saving of space and the fact that the over-all efficiencies were in favor of the turbine pumps, the Columbus district engineer, Mr. F. F. Fisher, decided to try several stations in his territory with close coupled turbine pumps.

There are three Columbia Network Stations located near Mansfield, Ohio, within a radius of twenty-five miles, all equipped with Deming Turbine Pumps.

The Ohio Fuel Gas Co.'s plant is a so-called "B" station, pumping to the Pavonia Plant, an "A" station, which is the main station, collecting gas from all others in the neighborhood and delivering direct to the market.

The gas received at the Ashland District Station comes from about 600 wells of a maximum radius of 20 miles. The piping system from these wells is a network of small and larger pipes, finally reaching the station in two 12" lines, one called the line from the high pressure field and

the other from the low pressure field.

The pressures under which they reach the station vary; they range from 14 lbs. to 80 lbs.

The Ashland Station is equipped with the following essential machinery:

- 1—Blaw-Knox Gas Cleaner
- 2—450 HP Worthington Snow Engines
- 1—1150 HP Worthington Snow Duplex Engine
- 1—350 HP Cooper-Bessemer Gas Engine (Photo #1)

Each of these engines is operated by natural gas and they are direct coupled to compressors. Engines and

compressors are jacketed for water cooling.

- 1—Marley Double Cooling Tower with two fans for induced draft
- 6—Deming Turbine Pumps as follows:

- 2—Fig. 4700 12" two stage, 1000 GPM against 60 ft. head, 20 HP at 1750 RPM for engine and compressor jacket cooling.

- 2—Fig. 4700 16" one stage, 1500 GPM against 30 ft. head, 15 HP at 1150 RPM, pumps warm water over cooling tower.

- 1—Fig. 4700 8" two stage, 250 GPM against 30 ft. head, 3 HP at 1750 RPM, for water supply from pond to cooling tower basin.

- 1—Fig. 4700 10" one stage, 500 GPM against 30 ft. head, 5 HP at 1750 RPM for replenishing pond from river one-half mile away.

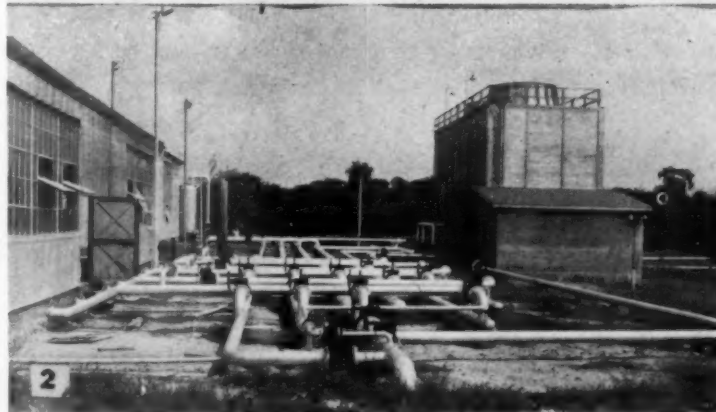
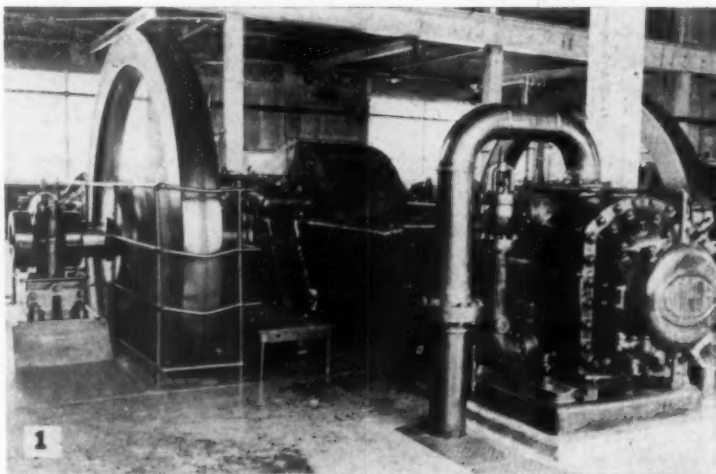


Fig. 1. 350 H.P. Cooper-Bessemer Gas Engine
Fig. 2. Cooling Tower on the right of piping system.

The gas upon entering this station is scrubbed by a Blaw-Knox Gas Cleaner. When the scrubbing process is completed the gas proceeds to the compressors, usually entering at 14 lbs. pressure. To carry away the heat generated in the cylinders of the gas engines and the cylinders of the compressor jacket, water is pumped through both.

The cooling tower is of wooden construction, 35 ft. high, 46 ft. long and 22 ft. wide. The concrete reservoir under the tower is about 7 ft. deep and extends on one end 10 ft. beyond the tower (Photo #2). The small building of 10' and 22' floor space above this extension houses four Deming Turbine Pumps.

This reservoir is divided in the middle, one-half being a cold water sump and the other the hot well. In the foreground of picture #3 the motors and discharge heads of the two 1000 gallon pumps are seen

placed above the cold water sump while the two 1500 gallon pumps in the background are over the hot well.

The tower is divided into two separate compartments, each compartment having a large circulating fan set in the roof. One compartment contains the cooling coils for the inter and after coolers from the compressors. The warm water from this compartment is collected in the hot well which also receives the warm water from the engine and compressor jackets. The other compartment collects cool water for use in the cold well.

As will be noted, the position of the levers on the first and last pumps indicated that the valves are open and therefore these two pumps are in operation. The two middle pumps are duplicates of these and to equalize the wear operate on alternate weeks with the first two.

The distance from pump house



Fig. 4. River pump, a half mile from the gas station is installed in a concrete pit and protected from the weather by a steel shed.

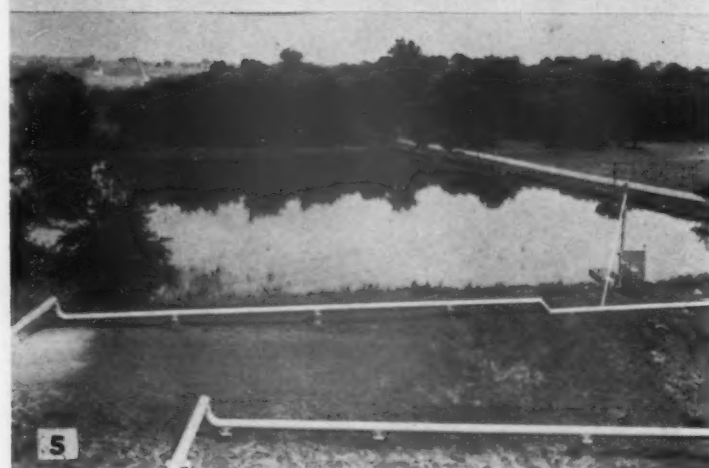


Fig. 3. Motors and discharge heads of two thousand-gallon pumps in foreground. Two 1500 gal. pumps in background are over the hot well.

Fig. 5. Pond of the cooling tower.

floor to the bottom of the Keystone strainers of each of these four pumps is 7'-0".

Gas is admitted to the compressors, usually at 14 lbs. pressure. The first stage of compression raises the pressure from 14 lbs. to 68 lbs. Leaving the compressor the gas has a temperature of about 200°F. and is conducted through a 12" steel pipe line to an intercooler consisting of four horizontal banks of a total of 360- $\frac{7}{8}$ " copper tubes connected to inlet and outlet headers. This intercooler is located in the first cooling tower compartment described above.

The lower section consists of two banks, or 180 tubes, and is three feet above the top of the foundation, the upper section consists of the same number of banks and tubes and is located two ft. above the lower section.

The gas, after passing through the 360 tubes of the intercooler, returns under a pressure of 68 lbs. to the pumping station and is further compressed to 198 lbs. and leaving the compressor with a temperature of 200°F. and returning to the after-cooler located in the same compartment of the cooling tower as the intercooler. Here it goes through a set of 98- $\frac{7}{8}$ " copper tubes arranged in two banks, one above the other, similar to the 360 tubes of the intercooler. When leaving the cooling tower the gas now is under 198 lbs. pressure at a maximum temperature of 85°F., and is ready for delivery into the Pavonia Station.

The 1000 gallon pump takes care of cooling engines and compressors. The water is taken out of the cold

well and pumped through the water jackets of engines and compressor and returns without going over the spray tower to the hot well section of the reservoir. Here it is picked up by the 1500 gallon pump which furnishes water for the two sections of the towers (356 spray nozzles located on tower). Some of these spray nozzles are located in the section for gas cooling and the rest in the other section next to the pump house. The water which comes from the spray nozzles in this section simply goes over the decks of lath, etc. After falling into the reservoir, this water returns to the cold well and is used over again for supplying the water jackets with cool water.

In a cooling tower the spray and cooling action is affected by:

- (a) Radiation from sides of tower.
- (b) Contact of water with cool air.
- (c) Evaporation.
- (d) Induced draft.

On top of the tower there are installed two fans, one of 116" dia. and the other 132" dia. The gas cooling fan (116" dia.) is connected by a jack shaft and reducing gears to a 15 HP two speed electric motor. When operating at 1750 RPM, 15 HP are required, and when operating at 875 RPM, 3.7 HP are required. The jacket water cooling fan (132" dia.) motor delivers 25 HP at 1750 RPM and 6.2 at 875 RPM. Two speed fans were selected to provide induced draft depending on atmospheric conditions. In the winter time the fans are not used very much while in hot humid summer days they have to run continuously. These fans draw the air through the side louvres of the tower, accelerating the air current in the enclosed structure.

River Pump:

This pump mentioned above is

located on the river bank about one-half a mile away from the gas station. It is installed in a concrete pit (Photo #4), protected from the weather by a steel shed. The distance from the bottom of the discharge head to the bottom of the strainer is 10 ft. The discharge line is laid underground and supplies the pond of the cooling tower (See Photo #5). Its operation is automatic and installation is frost proof.

Pond Pump:

The pond pump mentioned before is installed in a similar structure as the river pump. In order to keep it from freezing up in the winter time a heater is provided.

This pump operates during unfavorable hot weather conditions about twice daily for a period of thirty minutes, which is approximately 15,000 gallons per each twenty-four hours.

When the gas leaves the Ashland Plant it has gone through a stepping-up pressure process but no moisture or gasoline has been eliminated. This is done at the aforementioned Pavonia Station which has a drying plant. Ashland produces between 26 and 38 million cu. ft. of gas per day. When the gas reaches Pavonia it is stepped up by compression to 800 lbs. pressure for delivery to underground storage near markets, and 350 lbs. for delivery direct to the market.

From our observation and interviews with the operating engineers of these plants where approximately thirty vertical turbine pumps are installed, we are convinced that this type of pump is most suitable for gas booster stations.

The advantages of vertical turbine pumps may be summed up as follows:

- (1) High efficiency. (2) Ease of installation. (3) Easy to maintain.

- (4) No dry pits required. (5) No suction lines. (6) Always primed. (7) Will handle some sand and foreign matter without damage. (8) Less piping, fitting and valves.

Paper presented at October meeting of the National Association of Vertical Turbine Pump Manufacturers.

Girdler Corporation Appoints K. G. Holdom to New York Post

K. G. Holdom has been appointed Eastern Representative for the Gas Processes Division of The Girdler Corporation, Louisville, Ky., it is announced by W. R. Wood, vice president. Mr. Holdom is a graduate of the Massachusetts Institute of Technology, and soon after receiving his degree joined the M. W. Kellogg Company. With Kellogg he worked in the process division and also aided in the development of the fluid catalytic cracking and hydroforming processes. During the war he was employed by the Cities Service Refining Corporation at Lake Charles, Louisiana, and later joined the Houdry Process Corporation as a project analysis engineer in the sales department.

The Girdler Corporation's New York offices, where Mr. Holdom is stationed, are at 150 Broadway.

General Controls Appoints Maire to New Post

J. F. Ray, Director of Sales for General Controls Co., Glendale, California, has announced the appointment of E. B. Maire as Sales Manager of the following:

Midwestern, Southern and Eastern Branch offices, Boston, New York, Philadelphia, Detroit, Pittsburgh, Cleveland, Birmingham and Chicago.

As Sales Manager, Ed Maire will assist and coordinate the efforts of these offices in the contact with original equipment manufacturers, wholesalers, and utilities in the sale of automatic temperature, pressure and flow controls.

Mr. Maire has had many years experience in the automatic control industry and was formerly Regional Sales Manager for General Controls Co.

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Liquid Fuels From Natural Gas

Possibilities Outlined by Dr. Rushton
of Illinois Institute of Technology

GASOLINE, Diesel oil, and furnace fuel oil can be produced synthetically at the rate of 250,000 barrels a day if a string of 30 chemical processing plants were constructed in the natural gas fields of the Southwest and southern California, Dr. J. Henry Rushton, director of the department of chemical engineering at Illinois Institute of Technology, declared recently.

As a workable answer to the present-day fuel shortage, the petroleum industry already has under construction two such plants, each of which will have an output of more than 7,000 barrels of fuel oil a day, he told a press conference in the newly constructed Metallurgical and Chemical Engineering building at Technology Center, Illinois Tech's campus.

Dr. Rushton, one of the nation's foremost chemical synthesis experts, explained that by using the hydrocarbon synthesis process, liquid fuels can be obtained by separating oxygen from air, using it to burn natural gas incompletely to form carbon monoxide and hydrogen (called synthesis gas). Then, reaction of the synthesis gas with a catalyst will form liquid hydrocarbons. These then can be separated to give gasoline, Diesel oil, furnace fuel oil, and other chemicals.

He said this process would yield gasoline and fuel oil at prices competitive with present costs of these products obtained conventionally from petroleum, now in serious short supply.

"America possesses proven reserves of natural gas totalling 170 trillion cubic feet, of which about 100 trillion cubic feet are available for processing into liquid fuels," the Illinois Tech scientist explained. He said that natural gas for synthetic fuel production would be drawn from fields not now producing gas for household or industrial heating and power purposes.

"It has become apparent that we have sufficient reserves of natural gas to support the operation of about 30 plants devoted to the synthetic production of fuels. Construction of these plants could be started immediately if necessary, and it is probable that in the next 15 years we might want to build that many processing units.

"With 30 plants in operation, there is enough natural gas available to sustain them for approximately 140 years. Their daily production would yield five per cent of the 5,080,000 barrels per day which the U.S. oil fields produced in 1947."

He said that if the U.S. had to supplement its petroleum output at an even greater rate, 60 plants could conceivably be built which would yield 500,000 barrels of fuel per day. An investment outlay of about \$30,000,000 a plant would be required.

If it was desired to use up all of our proven natural gas reserves during the next 25 years for conversion to liquid fuels, American scientists could double our present output of petroleum products, he said.

"Two plants are under construction by private industry at the moment. One is located in the Hugoten Field in Kansas, the other in Carthage, Texas. Each plant of this type will use 50 million cubic feet of oxygen daily from 250 million cubic feet of air, which would be burned with 64 million cubic feet of natural gas daily. From this could be obtained a total output of 7,000 barrels of liquid fuel, of which gasoline would be produced in largest quantities, followed by Diesel oil, and furnace fuel oil."

Not only would the plants be invaluable to the national economy from the standpoint of bulwarking dwindling petroleum supplies, but a single plant, he emphasized, would turn out, as a by-product, as much as eight per cent of the ethyl alcohol that was produced in the U.S. in 1939. This by-product, he said, could be used with far reaching effect in the entire American plastics industry.

Another important by-product would be acetone, valuable for the industrial production of solvents and paints. A single plant could turn out in one day as much as 10 per cent of the total U.S. production of acetone in 1939.

Synthetic liquid fuels can also be made by the hydrogenation of coal, in which hydrogen instead of oxygen is reacted with coal. German experimentation during the war indicates that the new American hydrocarbon synthesis process (using oxygen)

will give liquid fuels at one-third to one-half the cost of the hydrogenation method.

The U.S. Bureau of Mines is studying hydrocarbon synthesis, using both oxygen and hydrogen, as possible solutions to the nation-wide oil shortages.

The Chicago scientist, who headed oxygen research activities for the Office of Scientific Research and Development during the war, stressed that increased scientific know-how on the synthetic production of fuel from natural gas would make possible cheaper methods of oil production from coal. He said America would not be producing oil from coal economically for another eight to ten years.

Institute of Gas Technology

Additions to the present buildings of the Institute of Gas Technology, will be a part of the \$15,000,000 expansion program of the Illinois Institute of Technology.

Work is now progressing on a new Chemistry building, and a metallurgical and Chemical engineering building. There are also under construction two four-story student dormitories, as a part of the Institutes plan to house 2,000 students, staff, and families in permanent apartment residences and dormitories adjacent to the campus.

Over a five year period 59 other academic, laboratory, campus, and housing structures will be erected, according to Henry T. Heald, president of Illinois Tech. The new buildings of the Institute of Gas Technology are included in the latter group.

"Illinois Tech's literal spadework has earned for it a major role in one of the great social and economic movements of our times," according to James D. Cunningham, Illinois Tech Chairman of the Board of Trustees.

The rebuilding program will eventually replace the 50-year-old academic and laboratory buildings which the college has been using since it was founded in 1892 by Phillip D. Armour as the Armour Institute of Technology.

Dr. Hanford Named Director of Petroleum and Chemical Research

The M. W. Kellogg Company, process engineers, H. R. Austin, president, has announced the appointment of Dr. W. E. Hanford to the newly created post of Director of Petroleum and Chemical Research. Dr. Hanford joined the Kellogg organization in October 1946, going to that company from General Aniline & Film Corporation where he was Director of Research.

Originally confined to one or two basic fields, the research activities of the Kellogg company have expanded in recent years until today they encompass virtually the whole gamut of chemical science.

Federal Power Commission

Northwest Natural Gas Co.

The Northwest Natural Gas Company has applied to the Federal Power Commission for authorization to construct a natural gas transmission line from the Canadian border near Kingsgate, British Columbia, through Idaho, Washington and Oregon and on to the Canadian border near Vancouver, British Columbia. Cost of the line and appurtenant facilities has been estimated at \$41,931,000. No estimate was included as to cost or extent of necessary lateral lines.

The company stated that gas supplies were to be obtained from producing fields in the Province of Alberta and that facilities necessary to gather and transport the gas to the border were estimated to cost \$36,568,000. These facilities would be constructed either directly by Northwest Natural or indirectly through a subsidiary or affiliate.

This project would provide for supplying the gas requirements of distributing companies in Vancouver and Trail in the Province of British Columbia and in Seattle, Spokane, Tacoma, Walla Walla, Washington, and in Portland, Oregon. Other municipalities and industrial customers along the line would also be furnished gas supplies.

The project as proposed would entail the laying of 606 miles of 24-inch pipe from the Canadian border near Kingsgate to Seattle and 150 miles of 18-inch pipe from Seattle to the Canadian border. Various lateral lines and four compressor stations with an aggregate installation of 28,650 horsepower would also be included in the project. Maximum daily capacity would be 209,000,000 cubic feet.

Construction would be commenced in the early part of 1950 or earlier if materials are available, and would be completed within the year unless the scarcity of pipe delays the project.

Northwest Natural was organized February 23, 1946, under the laws of Delaware for the purpose of constructing and operating the facilities requested. The company's principal place of business is located in New York City.

East Tennessee Natural Gas Co.

The Federal Power Commission has authorized East Tennessee Natural Gas Company to construct, operate, and maintain facilities to provide natural gas service to Chattanooga and Knoxville, Tennessee, and in communities in the area commonly designated as Middle and East Tennessee. Overall capital cost of the project has been estimated at \$11,470,592.

In addition to service to Chattanooga and Knoxville, East Tennessee proposes to serve certain towns between Lobelville and Chattanooga including Mt. Pleasant, Columbia, Lewisburg, Shelbyville, Fayetteville, Lynchburg, Tracy City, South Pittsburg, Richard City, Jasper and Whitwell. Towns between Chattanooga and Knoxville proposed to be served are Colteawah, Cleveland, Charleston, Calhoun, Riceville, Athens, Sweetwater, Loudon, Lenoir City, Alcoa, Maryville, and Rockville. Service is also contemplated to Centerville, Waynesboro, Lawrenceburg, Pulaski, Murfreesboro, Manchester, Dechard, Benton,

Englewood, Etowah and Philadelphia.

East Tennessee proposes to purchase its gas supply pursuant to a contract with the Tennessee Gas Transmission Company dated September 6, 1946. Under this contract, Tennessee Gas Transmission Company agrees to supply the requirements of East Tennessee for service in the area proposed to be served by the project for a period of 20 years. After the 20-year period the contract would continue on a year-to-year basis unless terminated by either of the companies involved.

The construction of the facilities authorized is to be commenced not later than February 2, 1949, and facilities required for service to Chattanooga shall be completed not later than October 1, 1949.

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SYNTRON CO.

920 Lexington, Homer City, Pa.



**BUST Concrete
CUT Asphalt**

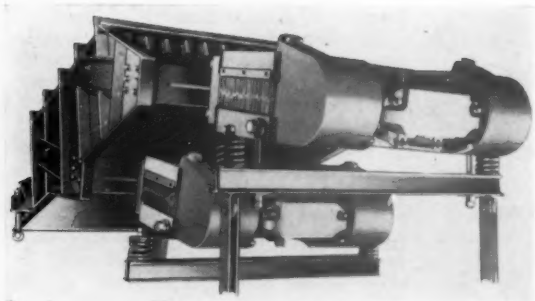


**DIG Clay, Shale and
Frozen Ground**



TAMP Backfill

New Equipment



Syntron Vibratory
Grizzly Feeder

Heavy Duty Grizzly

Specially designed for the large capacity separation of crusher feeds the F-55 double magnet, heavy duty electric vibratory grizzly feeder illustrated is the latest addition to the Syntron line of vibratory Grizzly Feeders which already include the models F-33, F-44 and F-45.

These grizzlies are available in different sizes and styles, either single or double magnet, with the magnets mounted above the deck or below, all featuring the variable control of the rate of feed and with either full or partial grizzly decks.

Operation is from 220 volt, or 440 volt A.C. The small models, the F-1, F-21, and F-22 can also be operated from 110 volt, A.C.

For complete information write to Syntron Company, 920 Lexington, Homer City, Pa.

Circulator Heater

Now in quantity production is the new Circulator Heater made by Empire Stove Company, Belleville, Ill.

This unit embodies several innovations including a two-piece outer casing, welded together, into one unit. This simplifies cleaning and strengthens the unit. Included also is a new built-in draft diverter



Empire Gas Heater

and a horizontal "Thriftomatic" burner to reduce the height of the base.

Made in five fully vented models ranging from 25 to 60 M. B.T.U. input. All models 36 9/16" height, 23 1/4 to 32" width, have 4 inch flue. Finish, rich brown. Descriptive folders on request.

New Deep Fat Fryer

A new line of lower priced Garland fryers is announced by Detroit-Michigan Stove Company.

Stainless steel baffles inside each of four oval-shaped tubes



Garland Fryer

permit application of a greater amount of heat to the tubes in the fryer bowl. These baffles spread heat more evenly over the tube area, so that the fat is not subjected to extreme "spot" heat. Thus, fat stands up longer, making possible important savings in fat costs.

While performance has been improved, economies in design and production permit pricing of the new line at a considerable reduction.

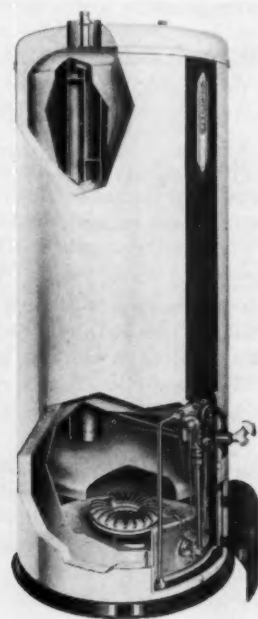
Models are available for use as

a separate unit or in battery. All models can be used with manufactured, natural or L-P gas.

LP-Gas Water Heater

A new automatic water heater engineered to use butane, propane or any mixture of liquefied petroleum gases, has been added to the Coleman line of home appliances. The new LP-Gas Water Heater is offered by The Coleman Company, Inc., Wichita, Kansas.

Outstanding feature is its all-steel atmospheric burner of exclusive de-



Coleman Water Heater

sign. Ribbon-type gas ports are shaped to permit secondary air to make free contact with the flames. The burner is easily removed for inspection and servicing.

The heater uses the new Grayson Unitrol "A" which consolidates the thermostat, 100 per cent safety shut-off valve, main gas cock, gas flow control valve and pilot valve in one unit. The Unitrol is enclosed within the heater casing with only dials for water temperature selection and fuel flow visible.

All modes are completely automatic in operation and bear the AGA seal of approval.

Three sizes, 20, 30 and 45-gallon storage capacity, are offered. The heater has two inches of blanket-type fiber glass insulation on top and sides.

and Appliances

Payne "CoolerAir" Unit

In the field of evaporative cooling, Payne Furnace Company, Beverly Hills, California offers their 1948 model "CoolerAir" for home and commercial cooling.



Evaporative Air Cooler

A feature is the clean, odorless surface of Fiberglas over which circulated water is sprayed by special nozzles and through which the air is drawn by a powerful fan, rubber-mounted for quiet operation with minimum vibration.

True air delivery is claimed, from 2,300 to 8,000 CFM, according to size of unit.

Other features include a high-performance circulator pump; rust resistant fan; positive action, non-clogging water feed valve; and non-corroding all-aluminum outer casing, with trim, modern lines.

New Portable Gas Heater

A new portable gas heater is the Inland "Comforter," a streamlined, dependable heat producer, developed and manufactured by the Inland Steel Container Com-



Circulating Gas Heater

pany. This AGA-approved, unvented type heater is easy-to-move, easy-to-connect and has many desirable operating features. It is a direct-type circulator which draws the cold air from the floor level, heats it, and circulates it uniformly throughout the room.

The cast iron burner is of slotted, rib-type construction—designed to operate with maximum burning efficiency and without smoke or odor. Input rating is 25,000 BTU per hour. The interior baffle maintains an even heat distribution and offers added protection against paper or other inflammable objects accidentally falling into the burner.

Made in four models, one for each type of gas: natural, manufactured, mixed and bottled. Each model has a brass valve equipped with a fixed orifice cap for the type of gas specified. There is no danger in an incorrectly set needle adjustment.

Cabinet is finished in a neutral brown color with a smooth, hard surface. Outside dimensions are: 13¼" deep x 20" wide x 18" high.

For additional information write Inland Steel Container Company, Cortez and Bienville Sts., New Orleans 19, Louisiana.

Restaurant Range

Choice of any desired combination of Open Grate, Hot Top and Griddle Top sections on Garland Restaurant Ranges now is being offered by Detroit-Michigan Stove Company.



Garland Restaurant Range

Design of interchangeable sections permits the buyer to select a top style for every cooking need and to arrange his cooking top in the manner which best suits the layout of his kitchen.

The interchangeability feature

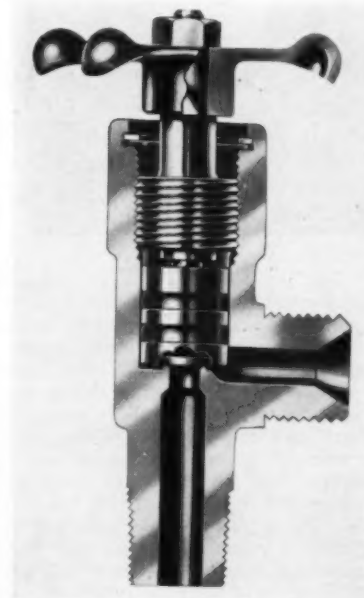
applies to all models in the Garland Restaurant Range line. This added flexibility makes possible a large number of arrangements and is meeting with great favor on part of restaurant owners.

Model No. 83-2 is shown with one arrangement of Open Grate, Hot Top and Griddle sections. Interchangeable sections now available provide for many other arrangements.

The new line will be exhibited at the National Restaurant Show in Cleveland, April 14 to 17.

Valve for High-Pressure Gases

The Se-Co packless stem valve is offered by the Security Valve Co., Los Angeles 31. It will not freeze, it is stated, in either open or closed position, nor will it disassemble by turning the spindle past the open position. The combination



Heavy Duty Packless Valve

of these two outstanding safety features thus eliminates the hazardous possibility of an individual accidentally backing the spindle out of a valve in service on a cylinder or line containing gas at high pressure. The valve is listed by the Underwriter's Laboratories, Inc.

Equipped with Neoprene "O" rings, as well as a Neoprene seat, the Se-Co valve also has a heavy-duty forged brass body and a full-grip hand wheel. Weight is 1.35 pounds; height is 4½" open, 4¼" closed. Approved operating pressures are 1 oz. to 3500 psi; operating temperatures are 70° to 250°F; maximum open and closed torque is 35-inch pounds.

A. G. A. Activities

Beck Heads A.G.A. Rate Committee

Appointment of Frederick C. Beck, Shreveport, La., as Chairman of the American Gas Association's Rate Committee for 1948 is announced by Hudson W. Reed, President of the Association.

Mr. Beck has been active in rate work for nearly 20 years, and is head of the rate department of United Gas Pipe Line Company, which serves more than 300 cities and towns in five southern states.



Frederick C. Beck

His first job was with Duquesne Light Company, in Pittsburgh, where he worked as apprentice engineer for about a year. He moved to Pennsylvania Power & Light Company in the construction department for another year, then joined the Rate Department of Electric Bond & Share Company where he devoted most of his time to the foreign Rate Division of the American & Foreign Power Company.

His work in this division took him to Brazil for a year and Mexico for some eight months, but he switched to the domestic department and in 1930 was assigned to United Gas Public Service Company in Houston, Texas.

In May, 1931, he was made head of the U.G.P.S. rate department, then moved into the sales department in 1933, still responsible for rates. The company became United Gas Pipe Line Company in 1937, and Mr. Beck moved to Shreveport with the firm's general headquarters in 1940. In mid-1947, he was named head of the newly created rate department of United Gas Pipe Line Company.

He has been active on the A.G.A. Rate Committee since 1938.

A.G.A. Industrial Processing Committee

There has been a long felt need in the American Gas Association, Industrial and Commercial Gas Section, for consideration of industrial gas applications outside of the ferrous and non ferrous fields. To meet this need, the Industrial Processing

Committee was formed under the Chairmanship of Carl Lekberg, Northern Indiana Public Service Co., Hammond, Indiana.

At the first meeting of the Committee, held in January, Mr. Lekberg appointed subcommittees and chairmen to treat with fields outside of those activities sponsored by the Metals Committee. The five industrial gas applications thought to be most important are: Ceramics, Food Processing, Metal Finishing, Printing, and Textiles.

It was decided, during general Committee discussion, that the most practical method of disseminating findings of the subcommittees would be to have each produce Information Letters in their respective fields. The first of these Letters in each field are to be ready for review by the Committee as a whole during the A.G.A. Sales Conference on Industrial and Commercial Gas at Windsor, Ontario, April 7, 8 and 9. Further discussion resulted in specific subjects being suggested to each subcommittee chairman for the Information Letters.

For the Subcommittee on Ceramics, Harvey C. Weller, Surface Combustion Corp., Toledo, Ohio, Chairman, it was proposed that the first work be to develop an Information Letter on standby equipment for industrial plants. It was decided that information on standby equipment should be given by the gas company industrial representative to his customers to keep the industrial consumer looking to the industrial gas representative as the consultant on fuels, and in this way, get the best information available, protect the industrial gas load, and in no sense to sell competitive fuel.

Chairman Kenneth I. Robinson, Public Service Electric & Gas Co., Newark, N. J., and his Subcommittee on Food Processing was charged with the production of an Information Letter on Air-Conditioned Smoke Houses.

Metal finishing has long been a subject of considerable controversy, especially for white finishes. It was thought that an Information Letter setting forth case histories and recommendations on oven types for white finishes from a quality viewpoint would have wide acceptance among industrial gas men who may have customers or prospects for this type of work in their territories. C. George Segeler, Utilization Engineer, American Gas Association, New York, is Chairman of the Subcommittee on Metal Finishing.

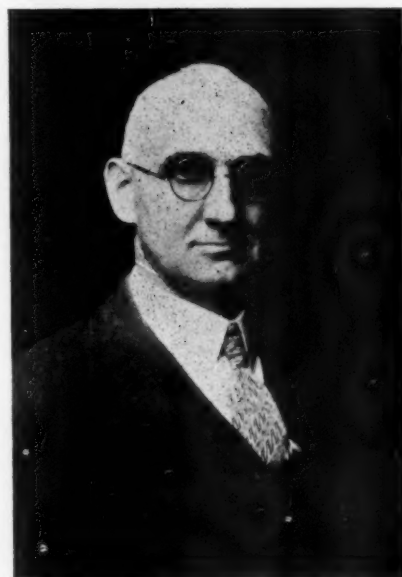
With the advent of a situation in the printing industry in respect to production costs, there is a definite trend toward higher press speeds with a consequent problem of drying. There are several printing press manufacturers of flat bed, rotary, lithograph and offset processes who specify gas drying equipment as a part of their installations. When such speeds as 9,000 impressions an hour have to be met, there is an engineering problem to put gas heat where it will be most effective, and in the proper quantity. The first Information Letter on this subject will be prepared by

the Subcommittee on Printing of which Thomas Watson, The Philadelphia Gas Works Co., is Chairman.

E. V. K. Schutt, Central Hudson Gas & Electric Corp., Newburgh, N. Y., Chairman of the Subcommittee on Textiles, stated that there were almost unlimited opportunities for the application of gas in the textile industry by citing his company's sales of 45 million cubic feet annually to 8 plants in his territory. As there are some 6,000 textile plants in the country, this field opens a tremendous opportunity for the sale of gas.

A.G.A. Pays Tribute to Percy S. Young

The Executive Board of the American Gas Association at its February 4 meeting unanimously passed a resolution paying tribute to the place of leadership and distinction occupied by Percy S. Young during 57 years of active service in the public utility industry. Mr. Young retired as Chairman of the Executive Committee of the Public Service Corporation of New Jersey and Subsidiary companies on December 19, 1947.



Percy S. Young

After citing his outstanding business career which started in 1890 with the Omaha Gas Company, the resolution records Mr. Young's great contributions to the gas industry through national association work. He served as President of the National Commercial Gas Association in 1914 and represented that association on the committee which organized the American Gas Association in 1918. He was President of A.G.A. in 1934, served on the Executive Board for 15 years, and for the past two years on the Advisory Council. He has served on approximately 30 committees covering a wide field of activity and as Chairman of many of those committees.

The results of Mr. Young's "many years of service will remain as a permanent memorial to his accomplishments," the resolution states.

News of the Gas Industry

The 37th Annual S.G.A. Convention Program

Plans and program for the Annual Convention of the Southern Gas Association to be held at Galveston, Texas, March 24-26, have been completed. It will present to those in attendance from the South and Southwest gas industry, the latest developments in many phases of the natural gas industry.

Galveston Island, an early rendezvous of explorers and freebooters, was chartered by the congress of the Republic of Texas in 1839 and served as the capital of the republic for a short time during the war for independence from Mexico. Focus of Galveston's resort activities is a broad boulevard which surmounts a massive seawall on the gulf side of the city. Galveston Island's seaward side affords more than 20 miles of smooth sand beach, accessible by automobile and providing ample facilities for bathing and fishing.

The Galvez and Buccaneer hotels, headquarters for the Convention, are located on the Galveston beach front.

The program will feature outstanding speakers and will include Dr. Alfred P. Haake, economic consultant to the General Motors Corporation, R. W. Carney, sales manager of the Coleman Company, Inc.; W. N. Blinks of the General Gas Light Company; Harry A. Atwater, Combustion Equipment Company; Frank C. Smith, Houston Natural Gas Corporation; A. B. Banowsky, Payne Furnace Company; Hudson W. Reed, president of the A. G. A.; Chester L. May, vice president of the Lone Star Gas Company; C. H. Zachry, president of the Southern Union Gas Company; H. C. Price, president of the H. C. Price Construction Company; Frank J. Nugent, vice president, Gas Appliance Manufacturers Association; Miss Ester Latzke, home economist for Armour and Company; and Miss Elizabeth Lynahan, chairman of the A. G. A. Home Service Committee.

Two meetings of the Housing Committee have been held and ample housing accommodations for the expected 1200 delegates who will be in attendance are now available. The Housing Committee promises that every effort will be made to take care adequately of all those who are planning to attend.

Most member companies have made reservations for their personnel who are attending the Convention. Individuals who have not made hotel reservations should write to the Housing Committee, c/o Southern Gas Association, 1230 Mercantile Bank Building, Dallas, and accommodations will be confirmed as promptly as is possible.

Southwestern Gas Measurement Short Course

The General Committee of the Southwestern Gas Measurement Short Course met in Oklahoma City, January 16, 1948, to work on plans for the twenty-third an-

GENERAL COMMITTEE SOUTHWESTERN GAS MEASUREMENT SHORT COURSE



Left to Right: George E. Greiner, Phillips Petroleum Company, Bartlesville, Oklahoma; Cade C. Clover, American Meter Company, Tulsa, Oklahoma; W. H. Woods, Gulf Oil Corporation, Houston, Texas; K. R. Tibbets, Sinclair-Prairie Oil Company, Tulsa, Oklahoma; Roland O. Cox, Lone Star Gas Company, Dallas, Texas; R. M. Scofield, Lone Star Gas Company, Dallas, Texas; Gilbert Estill, Oklahoma Natural Gas Company, Tulsa, Oklahoma; Dean W. H. Carson, University of Oklahoma, Norman, Oklahoma; E. C. McAninch, Oklahoma Natural Gas Company, Ardmore, Oklahoma; Miss Kate A. Niblack, Oklahoma Utilities Association, Oklahoma City; C. A. Gibson, Cities Service Gas Company, Wichita, Kansas; T. S. Whitis, Amarillo Oil Company, Amarillo, Texas; W. A. Brewster, Arkansas Louisiana Gas Company, Shreveport, Louisiana; J. L. Griffin, Northern Natural Gas Company, Omaha, Nebraska; Lloyd L. Jordan, Shell Oil Company, El Dorado, Arkansas; B. F. Worley, United Gas Corporation, Houston, Texas; E. L. Stark, The Foxboro Company, Dallas, Texas.

Left Corner: C. E. Terrell, Southern Natural Gas Company, Birmingham, Alabama. Right Corner: M. D. Gilbert, Pittsburgh Equitable Meter Division, Rockwell Mfg. Company, Tulsa, Oklahoma and Earl Kightlinger, Arkansas Louisiana Gas Company, Shreveport, Louisiana.

nual Course which will be held at the University of Oklahoma, Norman, Oklahoma, April 13, 14 and 15, 1948.

The Chairman of the General Committee, Mr. E. C. McAninch, Oklahoma Natural Gas Company, Ardmore, Oklahoma, reviewed the past activities of the Committee for the benefit of the new members, then called on the Chairman of the Program Committee, Mr. C. E. Terrell, Southern Natural Gas Company, Birmingham, Alabama, for a progress report. Mr. Terrell submitted a list of prospective instructors from which was selected approximately sixty qualified persons to conduct the large number of diversified classes that will be held during the Short Course.

The Program in its final form will be ready for mailing soon after March 10.

Michigan Gas Association

The 1948 Convention of Michigan Gas Association will be held jointly with that of Michigan Electric Light Association on July 12 and 13 at Grand Hotel, Mackinac Island, Michigan.

Hotel reservations will be made through the Convention Committee. Office of the Secy.-Treas., A. G. Schroeder, of Michigan Gas Assn. is at 47 North Division Avenue, Grand Rapids.

Pennsylvania Natural Gas Men's Association

At the annual business meeting of the Association, the following were elected to the Board of Directors of the Association for the year 1948:

C. E. Bennett, Manufacturers Light & Heat Co., Pittsburgh; E. M. Borger, The Peoples Natural Gas Co., Pittsburgh; H. D. Freeland, Waynesburg, Pa.; D. P. Hartson, Equitable Gas Co., Pittsburgh; J. H. Isherwood, Allegany Gas Co., Port Allegany, Pa.; J. J. Jacob, Jr., The Peoples Natural Gas Co., Pittsburgh; D. S. Keenan, Carnegie Natural Gas Co., Pittsburgh; I. K. Peck, Manufacturers Light & Heat Co., Pittsburgh; B. D. Phillips, T. W. Phillips Gas & Oil Co., Butler, Pa.; H. H. Pigott, Equitable Gas Co., Pittsburgh; G. E. Welker, United Natural Gas Co., Oil City, Pa.

The Board then elected the following officers for the year 1948: *President:* D. P. Hartson, Equitable Gas Co., Pittsburgh. *Vice President:* J. H. Isherwood, Allegany Gas Co., Port Allegany, Pa. *Secretary-Treasurer:* P. L. Kesel, 1015 Frick Bldg., Pittsburgh. *Executive Secretary:* Mark Shields, 2619 Grant Bldg., Pittsburgh. *Counsel:* B. H. Smyers, Jr., 435 Sixth Ave. Pittsburgh.

Missouri Association of Public Utilities

Plans for the 1948 Convention of the Missouri Association of Public Utilities to be held in St. Louis, Mo., April 28, 29 and 30 are completed. Since this is the first convention of this organization to be held since the start of the war, various committees are endeavoring to make it one of the most interesting annual meetings ever held.

Speakers who have already accepted invitations to appear on the program include: Col. Hudson W. Reed, president, The Philadelphia Gas Works Company and president, American Gas Association; Chas. E. Oakes, president, Pennsylvania Power & Light Company and president, Edison Electric Institute; and N. T. Veach, Black & Veach Engineering Co., Kansas City, Mo., president, American Water Works Association.

Another nationally known speaker who will appear on the Missouri Association program is E. R. Dunning, Vice President, N. W. Ayer & Son, who will talk on the subject "The Utilities and Their Most Important Problem." He will discuss the understanding and relationship between the public and the company.

J. W. McAfee, president, The Union Electric Company, St. Louis, is president of the Missouri Association. Dudley Sanford, Union Electric, St. Louis, is chairman of the Program Committee and Paul Ford, manager, The Gas Service Company, Independence, Mo., is entertainment committee chairman.

Consolidated Edison Co. Could Reduce Expenses \$8,000,000 if Natural Gas Comes to New York

The Consolidated Edison Co., New York, in a statement to stockholders, Feb. 2nd, said that annual savings of up to \$8,000,000 in material and fuel costs, and an estimated net saving in future plant cost of \$1,600,000 may be effected if as much as 100,000,000 cubic feet of natural gas can be brought into its plants in New York City and Westchester County through a projected pipe-line operation.

The company said it had signed a preliminary agreement with Trans-Continental Gas Pipe Line Co., Inc., to receive natural gas, and that among studies made by its engineers was one assuming that 100,000,000 cubic feet a day might be available. The gas would be used primarily as a substitute for oil in enriching manufactured gas, although when not required for such purposes, it would be burned instead of coal in electric generating stations.

The pipe-line company has applied to the Federal Power Commission for authority to transport natural gas to New York City from Texas.

The utility's net system gas capacity would be increased 15 per cent by the move. The resultant mixed gas would be of the same heat content as that presently supplied and no change in consumers' equipment would be necessary.

Besides the indicated savings in material and fuel costs, some 190,000,000 gallons of

CONVENTION CALENDAR

March

- 10-11 *Eastern Natural Gas Regional Sales Conference*, William Penn Hotel, Pittsburgh.
- 11-12 *Oklahoma Utilities Assn.*, Biltmore Hotel, Oklahoma City.
- 18-19 *New England Gas Association*, Annual Meeting, Boston.
- 24-26 *Southern Gas Association*, Galveston, Texas.
- 30 to April 1 *Mid-West Regional Gas Sales Conference*, Edgewater Beach Hotel, Chicago.

April

- 5-7 *G.A.M.A. Annual Meeting*, Drake Hotel, Chicago.
- 7-9 *A.G.A. Sales Conference, Industrial & Commercial Gas Section*, Windsor, Canada.
- 8-10 *Mid-West Gas Association*, Annual Meeting, Nicolett Hotel, Minneapolis.
- 8-10 *Gas Meters Assn., Florida & Georgia*, Hollywood Beach Hotel, Hollywood, Fla.
- 12-13 *Florida Liquefied Petroleum Gas Assn.* Sheraton Plaza Hotel Daytona Beach, Florida.
- 13-15 *Southwestern Gas Measurement Short Course*, University of Oklahoma, Norman, Okla.
- 14-17 *National Restaurant Association Show*, Cleveland.
- 19-21 *Distribution-Motor Vehicle Conference, A.G.A.*, Hotel William Penn, Pittsburgh.
- 22-23 *Indiana Gas Association Convention*, French Lick Springs Hotel, French Lick, Indiana.
- 28-30 *Missouri Assn. of Public Utilities*, Annual Convention, Hotel Jefferson, St. Louis, Mo.

May

- 4-5 *Natural Gas Department, A.G.A.*, Rice Hotel, Houston, Texas.
- 18-20 *Pennsylvania Gas Association, Annual Meeting*, Galen Hall, Wernersville, Pa.
- 24-25 *New York-New Jersey Regional Gas Sales Conference*, Westchester Country Club, Rye, N. Y.
- 24-26 *Production and Chemical Conference*, Berkeley - Carteret Hotel, Asbury Park, N. J.
- 27-28 *Natural Gas and Petroleum Association of Canada*, General Brock Hotel, Niagara Falls, Ontario.
- 31-June 6. *Liquefied Petroleum Gas Assn. Annual Convention*, Sacramento, California.

June

- 2-4 *Annual Short Course, Gas Technology*, Texas College of Arts and Industries, Kingsville, Texas.
- 30-July 3 *Canadian Gas Assn. Annual Convention*, Jasper Park Lodge, Jasper, Alberta.

July

- 11-12 *Michigan Gas Association*, Joint Meeting with Mich. Elec. Lt. Assn., Grand Hotel, Mackinac Island, Mich.

September

- 14-16 *Pacific Coast Gas Assn.*, Annual Convention, Santa Cruz, Calif.

October

- 4-8 *American Gas Assn. Annual Convention and GAMA Exhibit*, Atlantic City, N. J.
- 14-15 *Texas Mid-Continent Oil and Gas Assn.*, Annual Meeting, Fort Worth.

oil would be released for other purposes and 260,000 tons of coke produced in the gas manufacturing process released for sale. In addition, 266,000 tons of coal would be saved in electric generation.

Meter Reading Accuracy

Brooklyn Union Gas Company now has two champion meter readers with records of over one million perfect readings. They cover terms of 14 and 18 years of service.



The Reliable Shut-Off for Street Mains

THE GOODMAN STOPPER

Now has the "Z" handle for easy manipulation. When locked in place it holds. Stopper cannot slip. Gas cannot pass. Adjusted in 30 seconds.

Ask for circulars on this and other distribution equipment.

Nearly a half century of service to the Gas Industry.

Safety Gas Main Stopper Co.
523 Atlantic Avenue, Brooklyn, New York

Lovett Elected President Milwaukee Gas Light Co.

J. A. B. Lovett, executive vice president of the Milwaukee Gas Light Company since March, 1947, was elected president at the annual stockholders and directors meeting held on February 2.

Paul J. Imse, who has been with the Company since April, 1905, was named secretary-treasurer to succeed Louis T. Smith, who retired because of illness that has kept him off the job much of the time in the last several years.



Paul J. Imse

Earl Frank, who has held the position of auditor, was elected an assistant secretary and assistant treasurer.

B. T. Franck was re-elected vice president in charge of sales and service; E. C. Brenner was again named vice president in charge of operations; R. J. Johnson was



Tom E. Hayes

re-elected assistant secretary and assistant treasurer, and T. M. Leahy was re-elected assistant treasurer.

Mr. Lovett succeeds Bruno Rahn as president of the Company, the latter retiring after 48 years of service which began when he obtained a job as office boy in 1900. Mr. Rahn served the Company in numerous capacities until 1939 when he was elected president.

Mr. Lovett has been connected with the gas industry here since 1939 when he came to Milwaukee to head the Milwaukee Solvay Coke Company.

The new secretary-treasurer is also a veteran in the gas business. Mr. Imse started at the bottom and worked his way to the top through many jobs, most of which were in the general accounting departments. He was elected assistant secretary and assistant treasurer in 1940.

Promotions for several employees of the Milwaukee Gas Light Company were announced following the annual meeting of the board of directors.

Tom E. Hayes, who has held the posts of research engineer and claim agent since 1937, was appointed director of personnel and public relations—a new position in the Company organization.

Arnold Altenhofen was promoted from the position of statistician to that of auditor.

Frank Lipsky succeeded to the position of statistician.

Battelle Institute Appoints C. E. Miller to Research Dept.

Battelle Institute, Columbus, Ohio, has named Carl E. Miller to its research advisory staff. Mr. Miller, who was key man in the Army's wartime fuel conservation program, will act as a technical advisor on research in coal, gas, and petroleum technology.

Well-known in the utilities and power field, Mr. Miller was associated for eight years with the Potomac Electric Power Company, Washington, D. C., and for three years with the Northern Indiana Public Service Company, Michigan City, Indiana. During the war, he served with the War Department in the Office of the Chief of Engineers as chief of the heating section and assistant chief of the utilities branch.

Green Made Vice-President of Cabot Carbon Company

E. L. Green, Jr., executive assistant and head of the natural gas and gasoline department of Cabot Carbon Company, has been elected Vice-President of the Company.

Mr. Green is a Texan who, since graduation by the University of Texas in 1929, has spent all of his professional career in the petroleum and gas fields of the Southwest. After three years with Gulf Oil Corporation, he went with the Texas Railroad Commission, and was supervisor successively of the Panhandle and Gulf Coast Districts. He joined the Cabot Company in 1936.

STAMANCO

A TRADE NAME THAT STANDS FOR



SPECIALIZED
EXPERIENCE
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LEADERSHIP
IN DESIGN
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HIGHEST QUALITY
WORKMANSHIP
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OUTSTANDING
SERVICE
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DEPENDABLE
PERFORMANCE

Let us figure on
your requirements.

The **STACEY** MANUFACTURING Co.
SINCE 1851
CINCINNATI 16, OHIO

GAS HOLDERS • HI-PRESSURE TANKS • PURIFIER BOXES
ENGINEERS • FABRICATORS • CONSTRUCTORS

An Independent Organization Not Affiliated With Any Other Builders of Gas Holders

Heating and Ventilating Exposition

This exposition was held in Grand Central Palace, New York, and was officially the 8th International Heating and Ventilating Exposition, under the auspices of the American Society of Heating and Ventilating Engineers, which held its 54th annual meeting during the same period, February 2 to 6, inclusive.

Revisions of design and introduction of new features by exhibitors in almost one hundred different categories represented in the Palace brought a heavy influx of invited visitors from trade, technical, industrial, management and business sources, and rolled up a registration total of 39,172 for the week, with no tickets sold and the general public strictly not admitted.

Of interest was the notable advance in numbers of manufacturers who have broadened their lines to meet all phases of the industry's requirements; also the continuing advance in the use of new structural materials of all kinds; and further emphasis on certain types of heat radiation.

The entire Lexington Avenue end of the main floor of the Palace was occupied by a unified exhibit sponsored by the American Gas Association and featuring gas appliances produced by a number of different manufacturers and serving a great variety of industrial and other purposes, including domestic water heaters in both cabinet and closet or utility room designs. Scattered through the exposition were many other examples of gas-fired equipment also. Included among such apparatus was "the smallest full sized forced air furnace built," (40x13x16 inches), also "the only fan type gas unit heater to which return air ductwork can be connected."

A complete new series of appliance burner pressure single valve regulators and a new gas burner featuring automatic injection of primary air, freedom from adjustments and silent operation were among other displays.

One of the most varied and comprehensive exhibit classifications was that composed of instruments for the laboratory, for air conditioning applications and for installation and field service.

"All Year" Gas Air Conditioner

Several newspaper test campaigns employing local testimonials will soon be under way in key Southern and Southwestern cities for the Servel "All-Year" Gas Air Conditioner. The newspaper advertisements will be run cooperatively with gas companies.

The results from a few newspaper tests to date have been most encouraging, according to R. J. Canniff, Advertising and Sales Promotion Manager, Servel, Inc., Evansville, Indiana.

Among the cities included in this test program are Dallas and Houston, Texas. "Testimonial" campaigns will also be released in Southern California, Oklahoma and Louisiana. The campaign in Dallas is on a year-round basis, with insertions about once every three weeks. A continuous trade paper advertising program is also being conducted in the building and architectural press.

All types of sales promotion materials—signs, displays, visual booklets and direct mail pieces—are being supplied by Servel to the gas utilities and distributors to tie in with the ads. Sales training courses are being conducted for gas company personnel by Servel, Inc., at Evansville, Indiana, with regional training schools soon to be established.

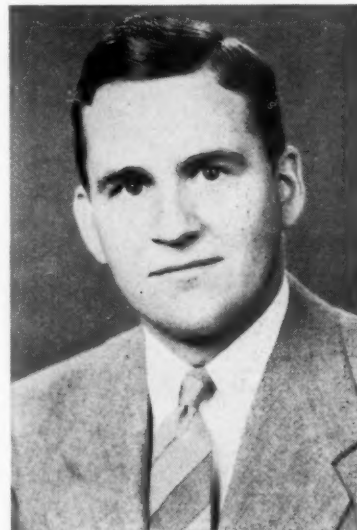
Many testimonials from commercial users, such as retail stores and offices, and from professional people will also be included. These emphasize that air conditioning increases the number of customers and boosts sales as well as improving employee morale and reducing absenteeism.

The ads are part of joint promotions by the gas company and commercial users. As a part of these promotions, stores which have installed the system display a placard, or decal, calling attention to it.

The new model Servel unit is the result of thirteen years' developmental work. After the first model was placed on the market a few years ago, 438 units installed in residences and commercial establishments were carefully and systematically checked by gas companies in all areas. This research provided the basis for the improvements in the new model, which was first publicly displayed to the trade at the Air conditioning and Ventilating Show held at Grand Central Palace, February 2-6.

Norman Rice in Sales Post for Inland Steel Container

The appointment of Norman D. Rice as Manager of Sales, "Comforteer" Division, has been announced by Gordon Zuck, General Manager of Sales of the Inland Steel Container Company. Mr. Rice, who pioneered the design and development of this new product, the "Comforteer" Portable Gas Heater, has taken charge of its sales following its introduction to the market.



Mr. Rice joined the Inland Steel Company of Chicago as a plant apprentice. In 1940 he was transferred to the Inland Steel Container Company, a subsidiary of Inland Steel, and is now located at the Inland Steel Container Company's New Orleans Branch where the "Comforteer" is produced.

At Last—"PRACTICAL" HOME HUMIDIFICATION

the **REPUBLIC** gas-fired **HUMIDIFIER** . . . it cleans itself



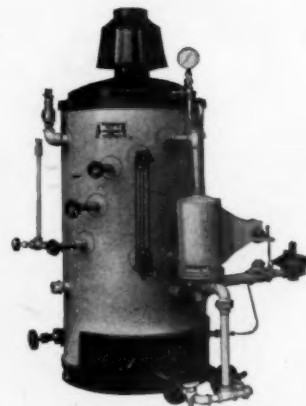
A SELF-CONTAINED, SELF-CONTROLLED UNIT, ADEQUATE FOR AN AVERAGE-SIZE HOME. BASEMENT INSTALLATION—INDEPENDENT OF THE HEATING PLANT. THOROUGHLY DEPENDABLE AND TROUBLE-FREE. SIMPLE IN DESIGN, IT FUNCTIONS THROUGHOUT THE SEASON WITH NO FUSS, NO BOTHER.

The REPUBLIC HUMIDIFIER measures only 24" x 17" x 11"—but its healthful, "spring-like" effect is felt throughout the home.

Additional Information Available Upon Request

AUTOGAS Company, 2157 W. Fullerton Ave., Chicago 47

LATTNER GAS BOILERS 1 H.P. to 45 H.P.



2 H.P. Gas Fired Pressing machine boiler. 100 lbs. ASME Code.

P. M. LATTNER MFG. CO.
CEDAR RAPIDS, IOWA

Mid-Winter Conference Pennsylvania Gas Assn.

The Pennsylvania Gas Association held a mid-winter conference in Philadelphia, Pa., Jan. 30th. More than 300 members and guests were in attendance.

Gordon Jones, Reading, Pa., opened the meeting and President J. M. Huebner welcomed the guests. The speakers were introduced by Harold Zeamer of Philadelphia.

George S. Jones, vice president, Servel, Inc., Evansville, Ind., stated there are 2,500,000 gas refrigerators in use, producing a revenue of some 38 million dollars, and that an additional 500,000 gas refrigerators would be sold this year. Replacement of old automatic refrigerators would constitute 80 per cent of the market, Mr. Jones stated.

Robert Stevens and Gordon Malone, also of Servel, dramatized this company's sales selection program, sales seminar, the miniature demonstrator and other sales aids, and the Servel national advertising pro-

gram reaching 50,000,000 readers each month.

Col. Hudson W. Reed, President, American Gas Assn., cautioned the manufactured gas industry to focus its sales efforts to produce the best return on investment.

Players from the Brooklyn Union Gas Co. presented an inspiring skit on how to sell the new automatic gas range built to "CP" standards.

W. D. Williams, Newark, N. J., Chairman, A. G. A. Water Heating Committee, outlined the advantages of gas in cost, speed, temperature selection, and convenience in water heating.

H. Carl Wolf, Managing Director, A. G. A., stated that "selling time is here again" and to be prepared with well trained salesmen.

A sound-color film was shown by Bryant Heater Co. which proved the need for thorough selling of house heating equipment.

NEGA Annual Business Conference Program March 18-19

The 21st annual business conference of The New England Gas Association at the Hotel Statler, Boston, on March 18 and 19, will be featured by 16 presentations covering a wide variety of subjects selected by the NEGA Program Committee.

The program will present speakers covering high Btu gas, mixed and straight natural gas, industry research, accounting, sales, industry promotion, the economic outlook, management and labor relations, fuels of the future, state commission regulation and industry developments. The Presidents of the A. G. A., of G. A. M. A. and of the NEGA and the Executive Secretary of the NEGA will complete the program, together with election of officers and directors. Special attention will be given to natural gas in that there will be 3 speakers covering different aspects of this subject. There will also be a luncheon of the Home Service Group.

Kohlhoff Operating Chief at Portland, Ore.

W. A. Kohlhoff, who has been in active charge of the Ebasco forces who have carried out the reconstruction of the Portland, Oregon, Gas & Coke Co. plant, has been placed in complete charge of plant operations.

He was assigned to Portland by Ebasco International Corporation last April as resident gas engineer for the betterment construction program at Portland.

Gas Service Company Now Serving 334,000 Domestic Users

The Gas Service Company, principal affiliated customer of Cities Service Gas, was serving a total of 334,000 domestic consumers at the end of 1947, according to "Gas Service" the employee newspaper of the distributing group. A total of 23,290

new domestic customers were added during 1947. Domestic gas sales of Gas Service of more than 40 billion cubic feet, an increase in 1947 of 26.3 per cent over 1946 figures, were reported. During the year, the distributing company renewed 41 new 20-year franchises in Missouri and Kansas communities.

"JOURNAL" GAS FLOW COMPUTERS

High Pressure

RANGE:

Cu. Ft. of Gas Per Hour—
100-10,000 M
Diameter of Pipe—Inches ¼-
30
Difference in Absolute Pressure—
Lbs. per sq. in., 1-500
Sum of Absolute Pressures—
Lbs. per sq. in., 2000-20
Specific Gravity—1.5-.35
Length of Pipe—Feet 100-5000
Length of Pipe—Miles 1-250

Low Pressure

RANGE:

Cu. Ft. of Gas Per Hour—
10 to 500 M
Pipe Diameter—¼" to 48"
(including standard and actual weight up to 4")
Pressure Loss—Inches .01-10
Length of Pipe—Feet 30-
30,000
Specific Gravity—1.5-.35
Constants—1400-1000

Made of durable celluloid, encased in a convenient leatherette cover with complete instructions. Actual size 6¼ x 7½

\$4.00 Each
Postpaid

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CLEVELAND

"A" TYPE METERS
"B" TYPE METERS
DIAPHRAGMS

Cleveland Gas Meter Co.

ESTABLISHED 1875

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THE HIT OF THE SHOW

The New Gordon
CLOTHES DRYER! *

- ★ Easily attached to most forced warm air units.
- ★ Capacity, 9 pounds of clothes.
- ★ List Price, \$75.00.

Ask for special bulletin on the Clothes Dryer and the new Gordon Line of Forced Air Furnaces, Highboys and Boilers.

* Patent Pending



ROBERTS-GORDON APPLIANCE CORP.
137 Arthur Street • Buffalo 7, N. Y.

Boston Gas Co. Renews Radio Series

On Monday, February 2, 1948 the Boston Consolidated Gas Company celebrated their third year on the air with "Quizzing The Wives," heard daily, Monday thru Friday over WNAC, key station of the Yankee Network.

In honor of the occasion John J. Quinn, V. P. of Boston Consolidated Gas and Gerald A. Higgins, Advertising Manager of the same company came to the WNAC studios to greet the live and listening audience and also to participate in the "birthday party" following the actual broadcast.

Yankee's Francis J. Cronin entertained the assembled guests with a number of selections on the famous WNAC studio organ. Lester Smith, quizmaster on the popular morning series acted as a waiter and served coffee and birthday cake to the large studio audience.

Photo above shows Janet Gilbert, Time Buyer, Harold Cabot Agency, cutting the cake with three candles. Each woman present in the studio received an American Beauty rose.

Boston Consolidated Gas Co. recently signed to renew this series for an additional 52 weeks.



From left to right: Gerald A. Higgins, Advertising Manager, Boston Consolidated Gas Co.; Betty Parks, Copywriter, Harold Cabot & Co., Inc. (advertising agency); Janet Gilbert, Time Buyer, Harold Cabot & Co.; Langley C. Keyes, Vice President and Account Executive, Harold Cabot & Co.; John J. Quinn, Vice President, Boston Consolidated Gas Company; and Lester Smith, Quizmaster on Boston Gas' popular "Quizzing The Wives" program.

Salesmen Win Prizes at Portland, Ore. Contest

Grand prize of a trip to Mexico by air and numerous other cash prizes were awarded by the Gas Appliance Society of Oregon at a Mexican dinner at Poncho's in Portland, climaxing the "Gas Has Got It" contest in which gas appliance salesmen of all dealer members participated.

E. J. "Al" Cappon of the Sellwood Appliance Company was introduced as the grand prize winner and furnished with the proper Mexican attire by W. L. "Bert"

Pengelly of Lipman Wolfe & Company, vice-president of the society, who made the awards.

J. H. Crosby of Powers Furniture Company won \$50 in the furniture store division; Glover Whitfield of Sears, Roebuck & Company, \$50 in the department store division; R. L. Nasby of Barney Freeland Appliance Center, \$50 in the appliance store division; and Guy Cantrell of George Morlan Plumbing & Appliance Company, \$50 in the plumbers' division.

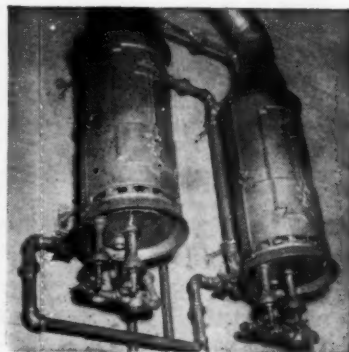
Winners outside of Portland were R. C. Carlisle of Newman's Appliance Shop,

Milwaukee; John Busch of Busch Furniture Company, Oregon City; and Kermit Peterson of Hogg Bros. Furniture & Appliance, Salem.



Collecting prizes in the "Gas Has Got It" range campaign sponsored by the Gas Appliance Society of Oregon for dealer salesmen are, from left: Harold Coopenbender, proxy for R. C. Carlisle; J. H. Crosby; E. J. Cappon, winner of the grand prize of a trip to Mexico; W. L. Pengelly, society vice-president who made the awards; Guy Cantrell, Kermit Peterson, Glover Whitfield and Barney Freeland, the latter the proxy of R. L. Nasby.

An Actual Installation of the only Thermostatic-Instantaneous Gas Water Heater



This installation has been in operation for the past 8 years in the football clubhouse of the Orange High School, and has required no service. These 2-#3s replaced a 500 gallon tank and heat 300 gallons per hour (60 Rise). 10 to 20 boys take a shower at one time under 4 large showers. This type installation can be used for Baptistries, Laundrettes, Dishwashers or any hook-up requiring a large quantity of hot water.

Other Models Available
All 60 Degree Rise.

#0—40 G.P.H. #2—90 G.P.H.
#1—50 G.P.H. #3—150 G.P.H.

Approved By I.G.A.
Gas Combustion Engineers

Manufactured By

Little Giant Water Heater Company

P.O. Box 1029, Orange, Texas

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WANTED

Gas Exhauster, 500,000 C.F. Hour capacity against 70 inches discharge pressure, inlet pressure (gas) 5-10 inches pressure. Carbureted water gas, sp. gravity 0.65, intake temperature max. 100 degree F. Driven by centrifugal steam turbine, steam at 125 p.s.i., saturated back pressure 10 p.s.i. State age, condition and price. Jacksonville Gas Corporation, P. O. Box 330, Jacksonville, Fla.

FOR SALE

9 valve hand control nest (Gas Machinery) in original crate for immediate shipment. Lewiston Gas Light Co., Lewiston, Maine.

WANTED

Oil heater, to heat Bunker "C" oil API 12, Saybolt-Furol viscosity 70 secs. at 120 degree F. Capacity 175 gallons per minute from 100 degree F. to 250 degree F. Steam at 125 p.s.i. saturated, discharge steam 10 p.s.i., oil to be pumped at 150 p.s.i. State age, condition and price. Jacksonville Gas Corp., P. O. Box 330, Jacksonville, Florida.

FOR SALE

Pipe—1½" O.D. Plain Ends. Random lengths. Approximate .148 wall. Used but in good condition. Quantities up to 20,000 feet available. Address Illinois Electric & Gas Company, Murphysboro, Illinois.

Refractories

A colorful 16-page 8½ x 11 bulletin on Norton Refractory Bricks has just been issued by Norton Company, Worcester 6, Mass.

It describes and illustrates the applications of "Crystolon" (silicon-carbide) brick as used for gas generators and boiler furnaces.

The applications of "Alundum," a fused alumina brick, for industrial furnaces, are also shown with dimensional illustrations of standard shapes and tongue and groove blocks for air cooled walls.

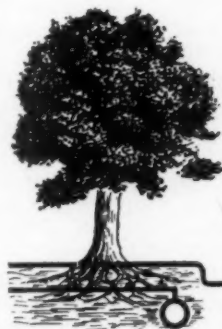
Tables of circle, wedge, key and arch brick are included as well as curves for conductivities and thermal expansion of standard and special types of refractories. Copy of the bulletin sent on request.



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Pipe Line Extensions in Southern California

SOUTHERN Counties Gas Co. and Southern California Gas of Los Angeles have announced plans for the construction of pipeline projects involving five different pipelines at a total cost of more than \$3,000,000 to facilitate the distribution of natural gas from the recently completed 70 million Texas-California pipeline to cities bordering on Los Angeles.

about 40 miles of 8-inch casing and an approximately equal amount of 6-inch, with 3- and 4-inch laterals extending to the city of Holtville. The system is to be designed for a pressure of 400 pounds, with terminal pressure of 75 pounds.

The proposed Pasadena line will be of 30-inch diameter, equalling the size of the Blythe-Santa Fe Springs section of the Texas line. This line

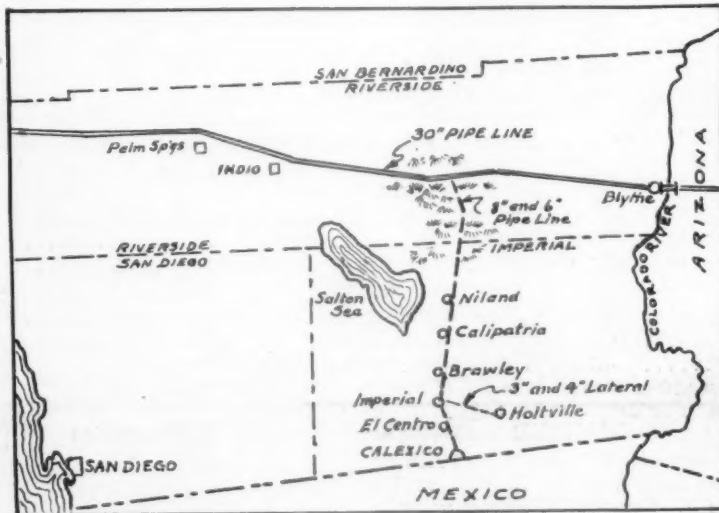
line 24,000 feet long and a 12-inch of 10,000 feet to round out connecting services.

The entire project, including the 30-inch line and the reinforcing line facilities is expected to be finished in time for the next winter's load, it was announced.

In another 1948 expansion project, Southern California Gas Co. announced the beginning of construction on a new dispatch headquarters at Spence and Pico Streets, Los Angeles in which are to be concentrated the dispatching operations for the firm's entire system.

The plans provide for the construction of three structures at a cost of approximately \$155,000. One will be an office building to house the dispatch staff and supervisory personnel; the others, will be in the form of buildings to cover metering and regulating equipment.

Feature of the metering buildings will be complete sound-proofing to minimize the noise of gas passing through the machinery. These structures will measure 22x28 and 72x72 feet respectively. The office building has been designed in 40x78 foot size and will contain a 30x48 foot central dispatching department, plus private offices for supervisors.



Major of the projects concerns the laying of a 30-inch line from the Santa Fe Springs terminal of the Texas-California line to Pasadena. Twelve miles in length this section is estimated to cost \$1,500,000, with financing shared by the two utilities. This line will serve as a reinforcement distribution line for the cities of Pasadena, Alhambra and the San Gabriel Valley northeast of Los Angeles.

An expenditure of approximately \$1,000,000 will be involved in construction of a pipeline in the Imperial Valley to transmit gas from the Texas-California line to towns in the Imperial Valley served by Southern California Gas Co. since its recent acquisition of Coast Counties facilities there. This project calls for the installation of approximately 80 miles of pipe. Field surveys for this project are now underway. Tentative plans call for the connection with the Texas-California line to be made near Desert Center, with the route then running through mountain passes to the towns of Calipatria, Niland, Brawley, Imperial, El Centro and Calexico. Plans provide for

will begin on Parsons Blvd., in Rivera, just west of the Santa Fe Springs terminus, and end at a new metering and regulating station to be erected at Mission Road and Atlantic Blvd. in Pasadena.

It was announced that Southern Counties Gas Co. will share in a portion of the cost of the pipeline to a point south of Pasadena from which Southern Counties plan to lay a line to El Monte. The entire Pasadena-line project will make available approximately 1,000,000 cubic feet of gas daily to reinforce the systems to which the new pipeline will be connected.

While the plans call for pipe in a diameter in excess of current needs, the companies have disclosed plans for using the excess capacity for gas storage of five to six million cubic feet. Construction of a storage holder of conventional design, to cost \$750,000 to \$1,000,000 is included in the proposal.

Three smaller pipeline projects have also been announced for the Pasadena area by Southern California Gas Co. These include a 16 inch line of 7500 foot length, a 16 inch

Southern California Gas Co. in Million Meter Class

Experiencing a record gain of approximately 50,000 meters during 1947, the Southern California Gas Co. on January 2 entered the "million meter" class with a grand total of 1,005,000 independent sales meters on its lines.

The total, according to the utility's Customers Service Manager, H. E. Davidson, make Southern California Gas Co. probably the largest natural gas company in the world, and second in size only to the Consolidated Edison Co. of New York among firms in the United States serving both natural and manufactured gas.

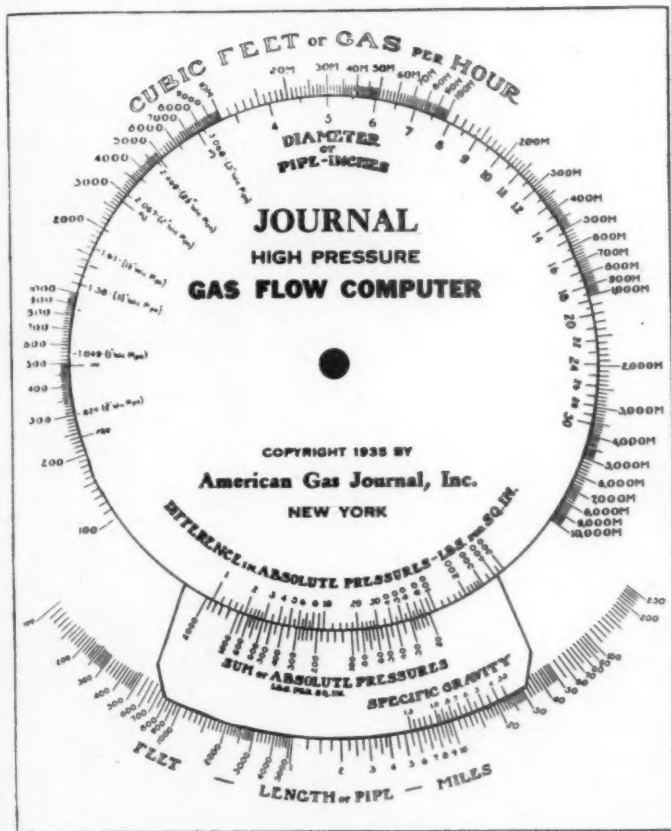
As of December 31, the total number of meters in service in the company's six divisions was 999,537, which figure was brought above the million mark for the first time in the firm's history by new installations made on the first working day of the new year.

Included in the grand total are some 4,000 meters added when Southern California Gas Co. recently acquired the holdings of Coast Counties Gas & Electric Co. in Imperial Valley.

Tulsa Okla. Reports 1947 Growth in Gas Sales

Chamber of Commerce of Tulsa reports for 1947 an increase of 5.7 percent in gas meters over 1946. This increase, however, shows increase in total gas consumption of 24.5%, most of which is for industrial use. Total gas consumption for 1947 was 25,142,544 M.C.F.

"Journal" Gas Flow Computers



These Improved Gas Flow Computers are available in durable celluloid, encased in a convenient leatherette cover with complete instructions.

Actual Size $6\frac{1}{4} \times 7\frac{1}{2}$



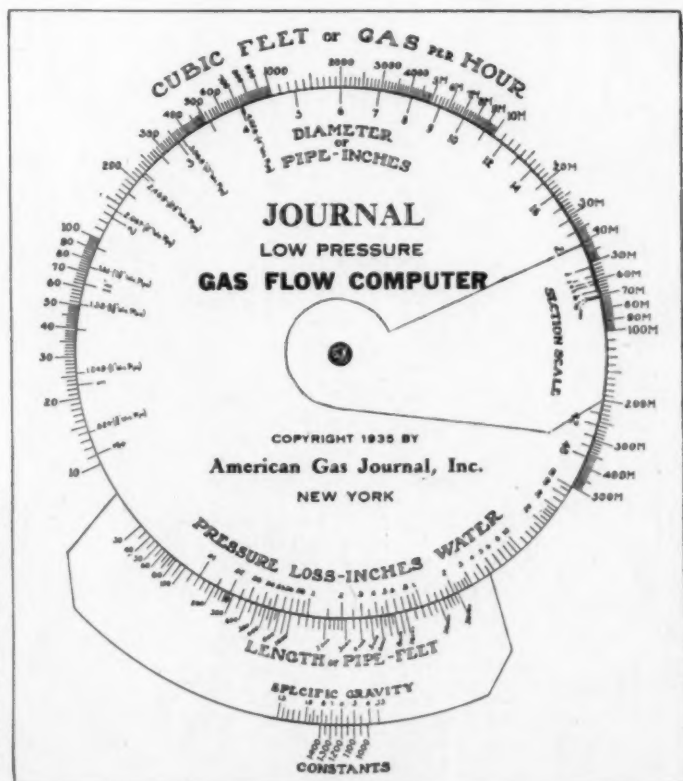
High Pressure Computer Range:

- Cu. Ft. of Gas Per Hour—100-10,000 M
- Diameter of Pipe Inches $\frac{3}{4}$ -30
- Difference in Absolute Pressure—Lbs. per sq. in. 1-500
- Sum of Absolute Pressures—Lbs. per sq. in. 2000-20
- Specific Gravity 1.5-.35
- Length of Pipe—Feet 100-5000
- Length of Pipe—Miles 1-.250

Low Pressure Computer Range:

- Cu. Ft. of Gas Per Hour—10 to 500 M
- Pipe Diameter $\frac{3}{4}$ " to 48" (including standard and actual weight up to 4")
- Pressure Loss Inches .01-10.
- Length of Pipe—Feet 30-30,000
- Specific Gravity 1.5-.35
- Constants 1400-1000

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Neither spiralling maintenance or repair costs need be much of a problem to those who use Sprague Meters in their gas installations. Sprague equipment has proven through the years its accuracy and long life under normal and abnormal conditions. Uniformity of parts and simplicity of assembly insure lower costs in your service departments. The new lightweight Sprague Zephyr meters along with the well known iron case line offers types suitable to meet every requirement for gas measurement and regulation.



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